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TOTAL QUALITY MANAGEMENT IS NOT A NEW CONCEPT OR PROGRAM, BUT AN ACTIVE CORPORATE STRATEGY TO OPTIMIZE RESOURCES AND REDUCE INEFFICIENCIES, REWORK COSTS AND CUSTOMER COMPLAINTS. TQM SEEKS TO RAISE THE COLLECTIVE VISION OF QUALITY AND CHANGE THE FOCUS FROM THE PRODUCT TO ALL CONTRIBUTING PROCESSES THAT DETERMINE THE QUALITY OF A PRODUCT. TQM APPLIES TO ALL FACETS OF CLINICAL AND ADMINISTRATIVE OPERATIONS IN A HOSPITAL. ITS IMPLEMENTATION WITHIN HEALTH CARE IS UNIQUE; THEREFORE, TO FULLY UNDERSTAND THIS ENVIRONMENT, THREE ASSUMPTIONS MUST BE MADE. THE FIRST IS THAT MEDICINE IS A SERVICE FIELD. SECOND, IN THE LINEAR PROCESS OF MEDICINE, ALL PARTS MUST COME TOGETHER AT THE RIGHT TIME AND PLACE FOR THE PROCESS TO PROGRESS AND THIRD, THE LIMITING STEPS IN EACH PROCESS ARE EITHER PROCESS OR RESOURCE DRIVEN. THE FUNDAMENTALS OF TQM ARE GAINED THROUGH TRAINING, AND THIS STUDY EVALUATED THE TQM TRAINING PROGRAMS AT BLANCHFIELD ARMY COMMUNITY HOSPITAL AND THE ALLIANT HEALTH SYSTEM IN LOUISVILLE, TO DETERMINE THE BEST.

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                   Graduate Program in Health Care Administration,
                   Academy of Health Sciences, U. S. Army, Fort Sam
                   Houston, Texas 78234-6100

SUBJECT: Graduate Management Project

In accordance with the requirements for the degree of Master of Health
Administration from the U. S. Army - Baylor University Graduate Program in
Health Care Administration, the attached Graduate Management Project is
submitted by Captain Rosaline Jordan, Administrative Resident, Blanchfield Army
Community Hospital, Fort Campbell, Kentucky.

Encl   ROSALINE JORDAN
                                            Captain, MS
                                            Administrative Resident

IDENTIFICATION OF AN EFFECTIVE
TOTAL QUALITY MANAGEMENT TRAINING PROGRAM

A COMPARISON OF THE
BLANCHFIELD ARMY COMMUNITY HOSPITAL
FORT CAMPBELL, KENTUCKY
AND THE
ALLIANT HEALTH SYSTEM
LOUISVILLE, KENTUCKY

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Captain Rosaline Jordan

July 1990

Running head: EFFECTIVE TRAINING PROGRAM

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management concept to come to fruition, and as such has given true
substance and meaning to this research project.

Abstract

Total Quality Management (TQM) is not a new concept. In 1931, W. A. Shewhart recognized that *variability* within industry production could be understood using the principles of probability and statistics (Schultz, 1988). Variability is the dispersion exhibited by evaluations of successive events resulting from a common process. During the 1950s, Joseph J. Juran tackled the costs of achieving quality and discovered it could be divided into avoidable and unavoidable costs (Crosby, 1987). W. Edward Deming, in the 1950s, asked "Who can put a price on a satisfied customer, and who can figure the cost of a dissatisfied one?" (Strickland, 1989). TQM is not just a program, but an active corporate strategy to optimize resources and reduce inefficiencies, rework costs and customer complaints. TQM seeks to raise the collective vision of quality and change the focus from the product to all the contributing processes that determine the quality of the product (Strickland, 1989). TQM applies to all facets of clinical and administrative operations. Its implementation within health care is unique; therefore, to fully understand this environment, three fundamental assumptions must be made. The first is that medicine is a service field, not just technical or industrial. Second, in the linear process of medicine, all parts must come together at the right time

and place for the process to progress. Third, the limiting steps in each process are either process or resource-driven (Wright-Patterson AFB Study, 1989). TQM in health care strives to refine systems to meet or exceed goals for achieving quality technical outcomes, maintaining cost effectiveness, and for ensuring the most effective use of resources for providing continuous quality service to all customers. The fundamentals of TQM are gained through training, and this study was intended to evaluate the TQM training program at Blanchfield Army Community Hospital (BACH), Fort Campbell, Kentucky, and the training program at the Alliant Health System in Louisville, Kentucky. The results of this comparative analysis served to identify the best training program for implementation at a comparable health care facility.

Identification of an Effective

Total Quality Management Training Program:

A Comparison of the

Blanchfield Army Community Hospital

and the

Alliant Health System

Louisville, Kentucky

CHAPTER I

INTRODUCTION

On February 25, 1986, Ronald Reagan, then President of the United States, issued Executive Order #12637, which called upon every federal agency to "improve the quality, timeliness and efficiency of products and services." Our current Vice President, Dan Quayle, recently stated that our "quality and productivity should be second to none" (Highlights of Federal Quality Conference, 1989). Secretary of the Army, Michael Stone, personally chairs the newly established Army Total Quality Management (TQM) Committee (designated as a top-level executive committee and chartered to provide guidance on the scope, implementation, and institutionalization of TQM; approve policies and methodologies to support implementation; and provide a

forum for exchanging ideas). Stone stated that "TQM is a tool that must become an integral part of every functional organization" (Strickland, 1989). There is even an Office of Management and Budget (OMB) Circular (#A-132) which indicates that "the objectives are to make continuous incremental improvement and implement quality and productivity management practices in all executive departments and agencies" (Sweetland, 1989).

What has prompted all this excitement? *QUALITY* — the business topic of the decade (Williams, 1989). Some believe there is no greater issue of concern than that of quality (ODI, 1989). The pursuit and acceptance of a *total quality management* philosophy in the United States today is an effort to achieve the maximum potential in processes to facilitate a continuously improved output. Current issues such as financial survivability, foreign competition, increased lawsuits, and the reality of Japanese superior quality and reliability have prompted business, industry, and health care to evaluate all aspects of their operations.

Health care typically follows industry in the use of new management approaches by about ten years. The success of TQM principles is also well documented in industry and, to a lesser degree, in service industries, but its use within hospitals is almost nonexistent

(Gillem, 1988). Factors affecting the intense pursuit of TQM health care have been prompted by a fierce competition, rising customer expectations, regulatory and accreditation requirements, costs of non-quality and the concept of "ratcheting down" and doing more with less (Williams, 1989). In health care, the intent of TQM is to meet the needs of all customers and, through quality improvement initiatives, be able to provide better care and services to patients (Nackel, 1989).

Total Quality Management is not a magical formula. It is a philosophy that strives to encourage working collectively to resolve problems in an environment of mutual responsibilities. It is based on the fundamental premise that problems are usually systemic in nature and usually the fault of management or design (Federal Quality Institute, 1989).

Although Blanchfield Army Community Hospital (BACH) is a premier health care facility, implementation of TQM served to formalize and give structure to the many continuous improvement efforts being pursued by individuals and provided direction towards a hospital-wide effort. BACH had the ideal organizational elements to make a superior facility even better. Top management was totally committed to the pursuit of this innovative management philosophy. All customers, whether they be patients, physicians or commanders,

have benefitted from this effort to achieve maximum potential in processes that led to increased awareness of how we provided care and services and ultimately resulted in enhanced patient care.

Conditions Which Prompted the Study

Hospitals in general are experiencing rising costs, declining sources of revenue, and dwindling resources. Administrators are now challenged with finding creative methods to manage organizations.

In support of federal mandates directing the improvement of quality products and services, the Deputy Commander for Administration at Blanchfield Army Community Hospital (BACH) further directed the implementation of a Total Quality Management training program, since one did not currently exist. As anticipated, a comparative analysis of the effectiveness of the TQM training program at BACH with that of another health care facility resulted in identification of the best indicators for an effective training program. Ultimately, if the training in total management of quality in a hospital program can be improved upon, all customers will benefit from the outcome.

Statement of the Management Question

The management question of this study was: *What is the most effective Total Quality Management training program for a health care facility?*

Review of the Literature

History

Since the dawn of history, man has had needs for *quality.* Throughout history, though, the concepts for meeting particular needs have changed (Juran, 1989). When the village boundaries existed prior to the 20th century, quality management consisted of personal inspections by consumers and reliance on the reputation of *skilled* craftsmen for quality work. With the Industrial Revolution came such quality management concepts as specifications, warranties, audits, controls, measurement and standardization (Juran, 1989).

Another phenomenon that occurred late in the 19th century was the introduction of the F. W. Taylor concept of "scientific management." Taylor's method for doing work was based on "science and not a rule of thumb." Inherent to this concept was a separation of management and employees, which resulted in a tremendous rise in productivity. With this increase in productivity came a decrease in

quality, so quality control was introduced as a remedy to this situation (Juran, 1964).

Throughout the 20th century, the explosive growth resulted in the need for quality-oriented departments for the purpose of identifying defective parts and attempting to prevent their receipt by customers. At this point, quality belonged to a separate department, and was not everyone's responsibility. World War II supported the concept of massive production, with quality being a separate issue of lesser concern.

After World War II, the Japanese desired to gain global recognition through means of trade, rather than through the military and, as a result, sent teams abroad and invited foreigners (like W. Edward Deming, an American Industrial Engineer who focused on methods of statistical process control, and J. M. Juran, also an American engineer) to visit Japan for the purpose of teaching quality. Hence began the Japanese revolution in quality (Juran, 1989).

Strategies in this quality revolution included the following: (a) Upper management became involved; (b) everyone was trained in quality management; (c) quality improvement was continual; and (d) the work force became active participants.

As a result of increasingly superior quality, the Japanese were able to increase their share of the American market during the 1960s and 70s. Today, their products are widely sought and synonymous with exceptional quality.

Although some feel that the Japanese culture predisposes the acceptance by the Japanese people to accept the works of Deming and Juran, others will refute this based on the fact that the Japanese society was not significantly different, nor were their products considered quality-oriented, prior to World War II. Also, the Japanese have successfully transplanted their manufacturing philosophy to the United States — as proven recently, when an automobile manufacturing company in Tennessee voted against unionizing, in favor of Japanese management (Darr, undated).

During the last decade, social accountability in health care has changed as a result of secularization and de-professionalism of information, awareness of limited resources, and realization of personal responsibility to life styles as they apply to health. This new accountability was combined with the traditions of Samaratanism and empirical science to form the concept of "new medicine." With this *new medicine* concept came the obligation to identify quality standards

(Batalden, 1989). The management philosophy of total quality

management supports this process of pursuing quality.

In Pursuit of Quality

"Quality, total quality, is very much a question of putting

together all the small things that add up to good management," states

Frank Hodsoll, Executive Associate Director, Office of Management

and Budget and the Presidential Council on Management

Improvement (Highlights of Federal Quality Conference, 1989).

Deming states:

There will be no room for managers who do not know how to

work with their people to produce high quality goods at low

cost. High reliability cannot be secured without worker

compensation. Complex systems cannot be understood without

statistics. In the competitive world of the future, companies

which have not mastered these ideas will simply disappear.

There will be no excuses. (Tribus, 1983)

The Department of Defense Policy (5000.51-6, 1989) defines

Total Quality Management as both a philosophy and a set of guiding

principles that represent the foundation of a continuously improving

organization. TQM is the application of quantitative methods and

human resources to improve the material and services supplied to an

organization, all of the processes within an organization, and the degree to which the needs of the customers are met, now and in the future. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools, under a disciplined approach focused on continuous improvement.

TQM is the prevailing choice of continuous improvement initiatives by industry and health care organizations today, probably because nearly a third of all that is produced or manufactured in the United States has to be "redone" due to deficiencies (Juran, 1989). The logic of this choice, according to Crosby (1979), is that 25 percent of people doing a job must do it over a second or a third time, and that over 85 percent of all problems can be resolved at the first level of supervision. Without some sort of initiatives, there would be a tendency to accept rates of deficiency far above what could be achievable with a quality improvement process in place (Batalden, 1989).

TQM focuses on *process orientation*, to change the focus from the *product* to all the processes that together determine quality (Strickland, 1989). Top management must be willing to pledge total commitment, and all levels of management must be proactive and aggressive (Powers, 1988). All of this requires that the "prevailing

attitude must be a commitment to continuous quality improvement in every facet of our operations" (Major, 1989). Quality improvement must be mandated for all staff members and employees, and not be a voluntary venture (Juran, 1989). Its greatest strength is that it empowers everyone in the organization to seek continuous improvement opportunities at all levels, and spurs employee creativity and a sense of ownership and pride (Strickland, 1989).

TQM is applicable to hospitals, in that health care facilities are a network of processes, and each process has suppliers and customers (Tackett, 1989). Since each activity is a process, TQM will improve the quality of services by changing and improving the process by which it is produced or delivered. Each organization assumes ownership of its processes and must develop and implement its own unique methodologies for continuous improvement (Strickland, 1989). In all cases, it is meeting the customer's expectations that becomes the measure of quality (Juran, 1988). Customers are the individuals at the next process who receive the product or services.

Implementation

Quality review is the component of TQM that provides measurement to determine if key indicators and requirements of quality are being met (Juran, 1989). Every facet of an organization is

expected to define its scope of services, determine the customers of each aspect of service, determine quality as applicable, and also identify problems or key areas that require monitoring or improvement. This process will generate many potential indicators of quality. After a prioritization process, these indicators can then be identified as quality screening monitors. Measurement of each indicator will track performance and identify quality improvement opportunity (Crosby, 1984).

<u>Statistical Process Control</u>

Juran states that the term *statistical process control* (SPC) has several meanings, but that in most industrial organizations it refers to (a) basic data collection, (b) analysis through such tools as the Pareto Chart or the Ishikawa (cause and effect) diagram, and (c) application of the concept of process capability.

SPC tools are meant to assist in the quality improvement endeavor, but the statistics should not become ends in themselves, and, cautions Walton (1986), the "proliferation of charts without purpose is to be avoided" (p. 113). According to Crosby (1984), quality measurement is only effective when it is done in a manner that produces information that people can understand and use.

W. Edward Deming insisted that processes be standardized, and that standardized procedures are the best guidelines to follow. A goal of total quality management is to change the processes by reducing the variation and complexity within the process and thereby improving a customer's judgment of quality. There is a clear distinction between causes of variation, and by reducing the variations of quality characteristics at different stages of a process, the quality of the final product can be improved. If common causes are mistaken for special causes, attempts to improve any type of system will most definitely fail (Mainstone, et al., 1987). Similarly, if a common variation is attributable to an individual rather than to systemic factors, the individual might be incorrectly rewarded or punished for the outcome. Common causes are inherent in a process; for example, all clerks making an occasional error on a form, versus special causes that arise only during special circumstances, like one clerk making a particular error on a form. Common causes in a process can be reduced, but not eliminated. Special causes are always an exception to a process; they appear irregularly, but can influence some processes.

Statistical Process Control (SPC) techniques can be used to determine whether variation in a process is due to *common* or *special*

causes (Schultz, 1988). If a variation is attributed to common causes, then the system is considered to be under statistical control. When a system is under control, the variation will result in a normal and stable distribution of output over time. Statistical control is not a natural condition for a process, and must be achieved by eliminating the special causes. When all special causes have been eliminated, only the predictable variations will remain (Tribus, 1987).

In essence, only a stable process can be improved upon, therefore management's first task is to bring a process under statistical control (Juran, 1989). The fact that a process is under statistical control does not imply that the output is acceptable. It implies that the output is consistent and predictable. For example, a percentage of nonconforming items in a production process can be determined prior to ever being produced.

The Key to Success — Training

The literature indicates that in order for a quality management program to be successful, training must start at the top and then occur at all levels of the organization (Process Management Institute, 1987). Since the purpose of the training is to assist in changing behavior, it must also be designed to meet the needs of all categories of personnel (ODI, 1989). Additionally, new knowledge that is gained

from quality management training should be useful and applicable to the environment in which it is intended (Scholtes, et al., 1988).

Training can be as vague and broad as that which is needed to accommodate a corporate plan, or as focused as possible for a specific project at hand. Regardless, a training program must be designed to meet the multidimensional aspects of the fundamentals, processes, application, and implementation of quality (Leads Corp, 1988). The training curriculum should also take into consideration that there will probably be a need for continued training due to personnel turnovers, restructuring, new services or processes, and possible growth (Casurella, 1989).

Readily apparent in the pursuit of a quality management program is the fact that the training program could fail. Failure can be attributed to inadequate facilitators, facilities, equipment, leaders, or budgets (Murray, 1987).

Juran (1989) outlines the following steps as a superior method of approaching a training program:

1. Identify the organization's needs.

2. Design a proposed curriculum of courses.

3. Categorize training according to personnel needs.

4. Obtain the necessary materials and supplies for the program.

5. Identify the need for trainers, facilitators, or coaches.

6. Design a time table for meeting program goals.

7. Obtain a reasonable budget.

Training should always relate to the organization's goals. It should be result-oriented; measurable in performance; applicable to actual success cases and examples; and be self-sufficient, when necessary, to limit the expense of outside consultants (Tennessee Associates International, 1990). However, external specialists should always be a consideration when internal trainers cannot meet the needs of specific areas. Whether trainers are internal or external, they should possess the ability to teach, as well as be subject matter experts.

Training should be presented in phases, and programs should be adapted to meet the needs of the organization and address the following: (a) quality policies, (b) strategic quality goals, (c) quality planning road map, (d) internal and external customers, (e) tools of quality planning, (f) quality responsibilities, (g) costs of poor quality, (h) estimates on return on investments, and (i) measurement of quality (Juran, 1989).

This list is not all-inclusive, since quality management continues to grow by leaps and bounds. Worthy of mentioning at this point, however, is that language and terminology in the quality business varies, depending on the profession of the author. There are versions that appear to be scientific, engineer-related, statistical, businesslike, and just plain "trendy." Regardless, all attempt to focus on the same issue — the achievement of quality in all aspects of products and services.

The Costs

Quality improvement is not free. An organization can expect to spend as much as one percent of its total operating budget and experience at least a ten percent increase in management's workload, when TQM is fully implemented (Juran, 1989).

When one considers that total quality costs equal the sum of all the internal failures, external failures, appraisal and prevention costs, the long-term benefits of TQM make it a bargain (Boeing, 1985). A continual reduction in mistakes, continual improvement in quality, lower costs, less rework and less waste, are desirable goals in both industry and health care (Walton, 1986). Although the cost of quality never ends, prevention costs should be considered an investment,

since the prevention of quality problems will tend to make a company stronger over time (Labovitz, et al., 1987).

Ethics and TQM

Although not a major topic in the currently available TQM literature, the importance of ethics should be considered when implementing a new program. Carl M. Skooglund, of the Juran Institute, feels that ethics and TQM are interrelated and interdependent. He states "the environmental elements that determine the ethics and integrity of a person or institution are the very same elements that set up an environment for total quality" (1989, Autumn, p. 38). The individual and the organization must demand and maintain integrity to the highest standards, or long-term quality success will not be achieved. It is important that the right message be communicated from top management. Skooglund states that "lack of integrity will create credibility gaps, such as when management stresses quality, but the same short-term priorities manage to surface constantly" (p.33).

Elements that can foster high standards of ethics in an organization during TQM implementation are:

1. *Candor* — Individuals should feel comfortable about expressing their ideas.

2. *Trust* — This is a must, and should exist between individuals and departments.

3. *Reward* — Should always be consistent with the values of the organization.

Purpose of the Study

The purpose of this study was to evaluate and compare the Total Quality Management training program at Blanchfield Army Community Hospital with the program at the Alliant Health System. The study identified, through indicators, which of the two hospitals had the most effective and desirable program. As a result of this study, an improved training program can be developed for future use.

It is interesting to note that the full benefits to be achieved as a result of any training program might take years before becoming clearly obvious. However, significant improvements in the customers' perception of quality may be realized immediately by merely projecting a quality-oriented attitude. Beginning with this improved perception, immediate and long-term benefits can be expected by any organization undergoing a TQM training program.

CHAPTER II

METHODS AND PROCEDURES

The following methods and procedures were employed:

1. The mission and organization of Blanchfield Army Community Hospital (BACH) and of the Alliant Health System were obtained from direct interviews with the Deputy Commander for Administration and the Chief of Quality Management, respectively. Information was also obtained from Health Services Command Regulation 10-1, *Organization and Function Policy*, dated 31 March 1989, which provides the policy and guidance for the organization and functions of Blanchfield Army Community Hospital, and from hospital directives of the Alliant Health System.

2. The Hospital Commander at BACH was briefed to obtain approval for the study and the implementation program. The Chief of Quality Management at Alliant was briefed to obtain approval for a survey instrument, which was used for gathering data to determine, ultimately, the best TQM program for hospital implementation.

3. A survey was developed and distributed to a random population who had received training at both facilities and returned within a two-week period for analysis. Useful and relevant information was gathered to generate the necessary data for analysis

(Appendix C). (The survey was pre-tested on a random sample of study group members for the purpose of ensuring that the level of understanding of the survey was sufficient for this study.)

4. Information on the current training programs being used at BACH and Alliant were obtained from direct interviews with representatives of the quality management teams and from program publications.

5. The following indicators were used to determine the best training objectives for a successful program:

(a) Establishment of a data base to identify the demographics of participants in TQM training programs at both facilities.

(b) Identification of a high level of knowledge/expertise in TQM after receiving training.

(c) Identification of an overall increase in the awareness or provision of quality service to customers, after a training program.

(d) Identification of an increase in the knowledge of pertinent TQM topics and use of statistical process control techniques, after participating in a training program.

(e) Identification of a high number of personnel satisfied with the overall respective program, i.e., facilitators, training material and courses.

(f) Identification of program dissatisfiers, if applicable.

The following statistical process control techniques were used to present the survey findings:

1. *Pareto* Analysis

This technique allowed for a ranked comparison of factors which relate to issues of quality training. Sometimes called the *universal principal* by Juran, it reveals that there are usually only a few factors out of a group that affect a process. It attempts to reveal the greatest potential in quality improvement with the least amount of managerial effort. A Pareto diagram of training topics presented assisted in designing the follow-up training program for areas not well received or fully understood. A Pareto diagram was constructed by totalling the raw data on effect of each contributor and then determining the grand total effect by adding all the effects of all contributors. All contributors were reordered from greatest to smallest and the cumulative-percent of the total was determined. A graph was designed with the left vertical axis describing the measure used, and the horizontal axis was annotated with the contributors from left to right. The right vertical axis was labeled *cumulative-percent of total (0 to 100%)*, and bars were presented to express the magnitude of each contributor's effort as measured from the left axis.

A line graph was displayed to represent the cumulative-percent total, and this revealed the most significant factors affecting the process.

Insert Figure 1 about here

---

2. Graphs and Charts

Data was also displayed by pictorial representations such as bar graphs and stratification to show relationship between variables. Line graphs displayed trends and showed comparisons by categories.

Insert Figure 2 about here

---

3. Other Data

Other data was arranged by percentages or displayed in cause-and-effect diagrams to organize various factors contributing to the cause of problems or issues.

Insert Figure 3 about here

The evaluation of the training programs was primarily achieved through the results of the survey instrument. The survey's cover

letter and the survey itself were designed to be clear and concise and consisted of the following elements: (a) the purpose for the data collection, (b) a statement thanking participants, (c) instructions for completing the survey, and (d) a response and return date of no later than two weeks after receipt of the survey. The cover letter and survey were without administrative errors, and completion time was limited to no more than 15 minutes, so as not to become an administrative burden for the participants surveyed.

Methods and procedures in this analysis were deemed both valid (accurate) and reliable (consistent). The survey was pre-tested on a random sample group to ensure an acceptable level of understanding of the questions, and was reviewed by the Resource Management Division at BACH. All conditions for data collection remained consistent for all participants. Additionally, information was also obtained and verified with actual documented primary and secondary sources such as training records and personnel rosters. All survey data was reviewed for accuracy and completeness, and results were tallied, analyzed, and summarized. Survey items were scored in a consistent manner, and indicators measured what they were intended to measure. Every level of management was represented in the survey, which will be repeated periodically. Resulting scores will

be compared to past surveys, to maintain consistency. During the survey process, a random sample of personnel were personally interviewed to verify consistency with the survey responses.

The ultimate purpose of having conducted this analysis to evaluate two separate TQM training programs was to develop training objectives for an improved program. The analysis was conducted in such a way that it did not violate the ethical rights of any participant. Personnel were identified only in terms of numbers, for data collection, and not by name, and all participants were adequately and appropriately informed as to the purpose of the study.

CHAPTER III

RESULTS

The results of this study revealed that a combination of the methods used at both Blanchfield Army Community Hospital and the Alliant Health System produced the most effective TQM training program.

Through a comparative analysis with statistical process control tools, survey results provided the following indicators to determine the best objectives for a training program:

1. Demographic data was collected from personnel surveyed at BACH and Alliant, to establish a data base in which to conduct the study — displayed as percentage tables (Tables 1 and 2).

2. To determine the level of knowledge/expertise gained after attending a TQM training program, participants rated their respective programs on a scale of 1 (limited) to 10 (expert). The following frequencies and ratings resulted in a mean, median and mode for each hospital (Table 3).

BACH		ALLIANT	
Frequency/Rating (1-10)		Frequency/Rating (1-10)	
3	1	0	1
0	2	0	2
2	3	1	3
23	4	2	4
60	5	1	5
8	6	29	6
3	7	40	7
1	8	17	8
0	9	8	9
0	10	2	10

3. To assess the Quality Service Awareness (QSA) level as a result of TQM training, participants rated their hospitals on a scale of 1 (Poor) to 10 (Excellent). The QSA mean of BACH was *7* prior to training, and upon completion of the training program had increased to a mean of *8*. BACH achieved a 10 percent increase in quality service awareness as a result of training. Alliant's QSA prior to training was a mean of *8*, and upon training increased to *10*. Thus a 20 percent increase in awareness was realized at Alliant (Table 4).

4. Pareto Analysis was conducted on the TQM training topics from each organization. Data for the analysis was obtained from survey participants, who ranked each training topic from 1 (limited knowledge) to 11 (expert knowledge gained). Results were graphically displayed which indicated the "vital few" topics, where the majority of the training attention had been placed. This type of information could be used by training managers for revising programs appropriately, by increasing emphasis in other topic areas if desired. At BACH, the following topics were notable of the training program: (a) History of TQM, (b) TQM Principles, Values, Responsibilities, and Quality Awareness, (c) Internal and External Customer Service, (d) Current Trends and Success Stories. This depicts an emphasis on introductory topics, essential to a program in its fundamental beginnings. On the other hand, at Alliant, the topics highlighting the training program were: (a) TQM Principles, Values, Responsibilities and Quality Awareness, (b) Costs of Poor Quality, (c) TQM, Strategic Planning and Marketing, and (d) Internal and External Customer Service. This focus is indicative of an organization that emphasizes the fundamentals, but is striving for long-term benefits as well. To ensure that a program is well rounded and all facets of TQM topics are reasonably represented in training presentations, emphasis should

shift or programs should be revised accordingly, so that significant areas are not "lost" in the "useful many." Additionally, management can focus on the "vital few" areas and utilize this information toward quality improvement initiatives having the greatest impact (in essence, the highest return on investment). (Tables 5-8)

5. Stratification was used to review training objectives at both organizations. Survey respondents rated questions concerning (a) the applicability and usefulness of training, (b) the benefits of an orientation, (c) the knowledge of supervisors, (d) the facilitator's expertise, (e) the usefulness of training materials, and (f) the overall quality of the program. Upon obtaining the mean score of survey ratings from low satisfaction (1) to high satisfaction (10), program satisfiers and dissatisfiers were identified. Although not intended to identify root causes, general observations were made. All indicators of program satisfiers at Alliant were rated above the median 5, indicating satisfaction in the overall program. BACH's training program satisfiers were indicative of a new program, with only 50 percent of the indicators achieving a satisfaction level above the rated median score of 5. Immediate improvement initiatives in BACH's training program should focus on improving program expectations,

increasing management's knowledge, and improving the facilitator's skills (Table 9).

      6. A cause-and-effect diagram presents the current training programs at BACH and Alliant, and visually suggests that the "ideal" program is one in which attributes from both are combined. Individual programs will have their own merits, but basic training objectives must always be achieved. This means that all members of an organization should be included in the training process, to ensure continuity and credibility in any hospital-wide effort toward continuous improvement (Table 10).

CHAPTER IV

Discussion

Since Blanchfield Army Community Hospital did not have a
Total Quality Management training program and the Deputy
Commander desired one, this study became the means of determining
which of two training programs would be the most effective to
implement. Prior to even arriving at this point, a training program
had first to be developed at BACH. This program had been
operational for approximately one year when it was evaluated. The
other organization, the Alliant Health System, had a training program
in place for approximately three years when it was evaluated.

Data collection for this study began with the creation of a ten-
question survey which was distributed to approximately 200 personnel
who had received TQM training at each organization. A sample
population was randomly selected from personnel rosters to obtain a
representation from all facets of both organizations, and the survey
was administered simultaneously to eliminate any bias. The
questions on the survey instrument were formulated from a
combination of training program objectives from both organizations.
Surveys were disseminated through administrative distribution points
at BACH and mailed to participants at Alliant. Respondents had two

weeks in which to respond, and all surveys were returned within three weeks, thus achieving an acceptable response rate. All data collection processes were considered timely and accurate. Additionally, the objective of the survey to gain useful data concerning the effectiveness of each training program, individually and collectively, was supported by random direct interviews with survey participants.

Responses to the survey questions were ranked and scored on scales of lowest to highest and interpreted by statistical process control tools, including Pareto Analysis, line graphs, percentages, and cause-and-effect diagrams. Demographic data was collected and presented in the form of frequency and percentages.

The findings revealed that there are indicators which can and should be considered when pursuing an effective and desirable TQM training program. Additionally, when program objectives are established, they should be monitored to justify continuation of a training program in its present or revised format. Similarly, useful evaluation findings will serve to contribute to the overall improvement of a well-developed training program and allow for opportunities of continued improvement, pursuit of goals, and enhancement to an organization. Over a period of time, follow-up

surveys will provide data for a comparison of quantifiable results

which, when summarized, will be useful in enhancing any total quality

management training program.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The management question of this study was to determine which of two Total Quality Management training programs would be most effective for implementation in a health care facility. It is concluded that the most effective TQM training program would be one in which the successful aspects of each of the current programs at Blanchfield Army Community Hospital and the Alliant Health System are combined.

Based on the results of a ten-question survey instrument and a comparative analysis of each program, objectives for an improved training program were identified and developed. The improved training program objectives should include and/or accomplish the following:

1. Information on the historical aspects of TQM.

2. Identification of the basic TQM principles, quality awareness, and responsibilities.

3. Benefits derived from quality policies, planning and goal setting.

4. Incorporation of TQM with strategic goal planning.

5. An understanding of internal and external customers.

6. Presentation of current trends and success stories.

7. Identification of the costs of poor quality, and estimation of a return on quality investments.

8. Measurement of quality with statistical process control tools.

9. The "how-to" of TQM implementation and quality review.

10. Management effectiveness through leadership training and team building.

11. Information on process management.

Recommendations

The management question was to determine which of two TQM training programs was most effective. As a result of the study, the following recommendations are offered:

1. A TQM implementation program should continue at BACH and at the Alliant Health System.

2. In support of the above, an effective training program is required to facilitate and maintain an adequate TQM implementation program. To fully train all staff members and employees adequately, training programs should be designed in the following manner:

a. A monthly, one-day *orientation for all new staff members and employees*, to be conducted within 30 days of arrival and consisting of applicable introductory hospital topics and information. TQM objectives should be fully integrated within all topics presented, and a fully trained TQM facilitator should be the coordinator for this orientation. Topics should include the following:

- Historical aspects of TQM

- TQM principles, values, quality awareness, and responsibility

- Internal and external customer service

b. A mandatory TQM *employee training program*, focusing on reenforcement of applicable objectives and conducted on an annual basis for a full day, yet offered over a one-week period to accommodate all work schedules. TQM facilitators would present this program and topics should include the following:

- Quality policies, planning, and goal setting

- Current trends and success stories

- Costs of poor quality, and estimates of returns on investments

c. A *management training program for all managers*, to be conducted annually for a three-day period. This training would be

presented by fully trained facilitators and contracted consultants.

Topics should include the following:

- TQM, strategic goal planning and marketing

- Quality measurement and statistical process control techniques

- Leadership training and team building

- Process management

    d. A *management training program for assigned quality improvement teams*, geared specifically toward "issue-specific" agendas, to be conducted on a once-a-week basis throughout the duration of the quality improvement initiative, usually lasting one hour per meeting. Training would focus on:

- The "how-to" of implementations

    e. *Facilitator training*, consisting of participation by facilitators in all internal training programs, with additional reenforcement obtained through attendance at TQM-specific seminars and conferences. Training should equate to two weeks of concentrated quality training geared toward producing coaches for internal training programs and employee education.

3. The current TQM training programs at both hospitals could be improved upon with revisions as indicated from the results of this study.

4. Other hospitals pursuing a TQM implementation program could benefit from the training objectives formulated as a result of this study, but they should also be prepared to tailor their programs in accordance with internal resources, authority, and regulatory requirements.

5. Finally, there should be a continuation of the survey process on a regular basis, to ascertain the effectiveness of the current training program in place.

CHAPTER VI

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APPENDIX A

DEFINITIONS

bar graph	A set of rectangles, with each rectangle representing a particular data value.
box plots	Data summary tools used with small samples of data or when comparing various distributions.
brainstorming	A process for developing ideas during a meeting of several participants.
cause & effect diagram	Professor Ishikawa's "fish-bone" diagram, which lists theories of causes.
checklist	A list of items or actions.
checksheet	A form for collecting data through marks such as checks or tickmarks.
conformance	An agreement between actual quality and a quality goal.
control chart	W. A. Shewhart's chart for statistical significance.
cost of poor quality	Additional costs incurred for imperfections and deficiencies.
customer	Any individual who is impacted by a process or its products.

data collection	Means of gathering data for other statistical tools.
facilitator	An individual trained to assist groups with continuous improvement initiatives.
feedback	Input from a customer about processes or services rendered.
flow diagram	A graphic display of steps in a process.
goal	Achievement.
histograms	Display of the distribution of a set of measurements.
line graphs	A series of line segments that connect points of numeric data, to display a functional relationship.
Pareto principle	A phenomenon where a few contribute to the bulk of an effect and help to establish priorities.
pie charts	Circles displayed into divided segments, each of which represents a proportion of a whole.
process	A series of events directed toward the achievement of a goal.
product	The output of a process.
quality	Product performance that meets a customer's satisfaction and that is without defects.

quality improvement	A structural process designed to eliminate waste related to poor quality.
reliability	Probability that an intended function will occur.
scatter diagrams	Charts which display relationships between variables.
Statistical Process Control	Concept of using statistics to assist in the evaluation of quality.
stratification	An analysis technique for pinpointing the location or source of a quality problem.
supplier	Any individual who provides input into a process.
validation	Process of reviewing data collection and ensuring that appropriate procedures were used and data is a representation of the item being measured.
variability	The dispersion displayed by evaluations of successive events.

APPENDIX B

MEMORANDUM

HSXD

MEMORANDUM FOR Staff and Employees of _____

_____

SUBJECT: TQM Survey

1. Enclosure 1 is a survey to which staff members and employees are asked to respond, for the purpose of evaluating the Total Quality Management training program at

_____

Complete this survey only if you have attended a TQM training program at your hospital.

2. A prompt and complete response by all participants will be appreciated. The information provided is expected to be useful in evaluating and enhancing the current program.

3. Completed surveys should be returned to the undersigned not later than _____ . Thank you for your participation.

Encl

ROSALINE JORDAN
Captain, MS
Administrative Resident

Address:
Blanchfield Army Community Hospital
Fort Campbell, KY 42223

Telephone Number:
(502) 798-8048

APPENDIX C

TQM SURVEY

PLEASE NOTE: The attached survey is for evaluating the TQM training program. All personal data will be used for official use only and will not be released in an identifiable manner.

Military []   **Civilian** []

Sex: Male []   Female []

Age: Under 18 []
18 - 35 []
36 - 50 []
51 - 64 []
Over 64 []

Education Level: Non-High School Graduate []
High School Graduate or GED []
Some College []
4-Year College Graduate []
Advanced Degree []

Name (Optional): _____

Hospital: _____

TQM SURVEY

1. What is your level of knowledge or expertise in TQM?

    1   2   3   4   5   6   7   8   9   10
    Limited   I'm an Expert

2. Based on the emphasis of training you have received, rank your level of
    knowledge and expertise in the following topics (from 1 - Limited, to 11 -
    Expert; use a number only once)

    a. History of TQM
    1   2   3   4   5   6   7   8   9   10   11

    b. TQM Principles, Values, Responsibilities and Quality Awareness
    1   2   3   4   5   6   7   8   9   10   11

    c. Benefits of Quality Policy Planning and Goal Setting
    1   2   3   4   5   6   7   8   9   10   11

    d. TQM and Strategic Planning and Marketing
    1   2   3   4   5   6   7   8   9   10   11

    e. Internal and External Customer Service
    1   2   3   4   5   6   7   8   9   10   11

    f. Current Trends and Success Stories
    1   2   3   4   5   6   7   8   9   10   11

    g. The Costs of Poor Quality
    1   2   3   4   5   6   7   8   9   10   11

    h. Measuring Quality with Statistical Process Control Tools
    1   2   3   4   5   6   7   8   9   10   11

    i. The "How-To" of Implementation
    1   2   3   4   5   6   7   8   9   10   11

    j. Management Effectiveness and Team Building
    1   2   3   4   5   6   7   8   9   10   11

    k. Process Management
    1   2   3   4   5   6   7   8   9   10   11

3. How do you rate the overall quality of service to customers prior to TQM?

```
1    2    3    4    5    6    7    8    9    10
Poor                                     Excellent
```

4. How do you rate the overall quality of service to customers after implementation of TQM?

```
1    2    3    4    5    6    7    8    9    10
Poor                                     Excellent
```

5. Training was useful and applicable, and met my expectations.

```
1    2    3    4    5    6    7    8    9    10
Disagree                                 Agree
```

6. My introduction of TQM at orientation was very useful.

```
1    2    3    4    5    6    7    8    9    10
Disagree                                 Agree
```

7. My supervisor's knowledge of TQM is helpful when pursuing quality improvement initiatives.

    1   2   3   4   5   6   7   8   9   10
    Disagree   Agree

8. My TQM facilitators have been well trained.

    1   2   3   4   5   6   7   8   9   10
    Disagree   Agree

9. The training material I have received has been useful.

    1   2   3   4   5   6   7   8   9   10
    Disagree   Agree

10. I would rate this training program as being one of the best.

    1   2   3   4   5   6   7   8   9   10
    Disagree   Agree

APPENDIX D

TQM PROGRAMS

BACH Vs ALLIANT

- Mission

- Quality Management Organization Chart

- Definition of TQM

- Quality Policy

- Quality Improvement Steps

- Quality Improvement Process

- Quality Improvement Submission Process

- Outcomes

- Rewards

- TQM Training Plan

    Program Content

    TQM Staffing

    TQM Staff Responsibilities

    Training Topics

    Location of Training

    Training Material

    Trainees

    Training Schedule

    Use of External Consultants

BLANCHFIELD ARMY COMMUNITY HOSPITAL

Blanchfield Army Community Hospital is a 241-bed, acute-care facility, located at Fort Campbell, Kentucky. It was dedicated on September 17, 1982, and named in honor of Colonel Florence A. Blanchfield.

Mission

The mission of Blanchfield Army Community Hospital is to provide: comprehensive health care and service to all beneficiaries; a comprehensive preventive medicine health environment program; comprehensive veterinary services; and an alcohol and drug abuse prevention and control program.

Quality Management Organization

_____

Insert Figure 4 about here

_____

Definition of TQM

"A strategic integrated management system for achieving customer satisfaction which involves all managers and employees, and uses quantitative methods to improve an organization's processes."

Quality Policy

We will support the concept of management and employee teamwork, to foster a feeling of pride and to encourage innovation and improvement of processes. We will strive for an optimal work environment to enhance motivation, safety, health, and quality workmanship. We will not sacrifice the quality of our patient care, and we will continue to strive for improved care and services through statistical process controls and sound management principles.

Quality Improvement Steps

1. *Mission, Vision, Corporate Values:* Every employee is an active participant in quality improvement processes and must be thoroughly familiar with the TQM philosophy.

2. *Commander's Commitment:* The Commander and top management are visibly convinced and committed to the concept of quality improvement.

3. *TQM Organization:* All staff members and employees are active quality improvement contributors throughout the organization.

4. *Education and Training:* All personnel are expected to receive an initial orientation and regular follow-up training thereafter.

5. *Customers' Expectations:* Customers determine acceptable quality — they should be consulted regularly.

6. *Continuous Improvement Opportunities:* Any customer can present quality improvement opportunities to the Quality Management Board for consideration.

7. *Quality Review:* Quality should be measured and monitored. The following process is applicable to all functional aspects of the organization:

   — Define the scope of services.

   — Determine the customer of each aspect of service.

   — Determine quality applicable.

   — Identify problem areas that require monitoring or improvement.

8. *Employee Recognition:* Employees should be recognized and rewarded for their contributions.

9. *Communications:* All aspects of the TQM program should be well known by all staff members and employees.

10. *TQM Integration:* TQM should be a part of all facets of the organization.

Quality Improvement Process

1) Identify the Problem

2) Identify Failure Costs and Institute Improvement Projects

3) Identify Causes of Major Costs

4) Identify Solutions to Reduce or Eliminate Causes

5) Compare Cost of Solution Implementation with the Expected Failure Cost Reduction

6) Implement Solutions Which Have Acceptable Payback

Quality Improvement Submission Process

A continuous improvement idea is generated by an individual and is submitted to the employee's supervisor. If warranted for further consideration, the idea is then forwarded to the Quality Management Board (QMB), which meets on a monthly basis to consider all submissions. If the idea is accepted for further evaluation, a Process Action Team (PAT) is assigned to conduct an analysis and make recommendations for against approval. All recommendations are forwarded to the Executive Committee, which is the final approving authority. Upon the committee's final decision, the employee is notified of the outcome.

Outcomes - Examples

1) <u>Improved patient care</u> — Discharge process streamlined for patients.

2) <u>Improved work process/productivity</u> — Patient Administration Division fully implemented TQM and has quantified results.

3) <u>Improved job satisfaction</u> — Physician's needs have been identified and addressed.

4) <u>Pending initiatives</u>:

    Development of a marketing plan, review of patient utilization of the ER, review of the Pediatric Patient Appointment System and cold food complaints.

5) <u>Educated employees</u> — Staff has an enhanced awareness of quality.

6) <u>Implemented quality improvement process</u> — 100% of all ideas have been considered.

Rewards - Examples

1) Actual implementation of an idea, service or process.

2) Commander's Certificates issued for initiative implementation.

3) Quality Awards Luncheon/Conference for staff and employees.

TQM Training Plan

1. *Program Content:*   The training plan at Blanchfield Army Community Hospital is distinguished by three phases:

Phase I -   Introduction and orientation

Phase II -   Follow-up workshop with specialty consultants

Phase III -   Development of process action teams for quality improvement initiatives

Phase I consists of a 1-2 hour orientation for all staff members and employees, and is presented annually on a departmental basis. All new employees receive the same introduction, within 30 days of arrival at the Newcomers' Orientation Program, to ensure continuity of knowledge with all employees.

Phase II consists of a week-long program with contracted subject matter specialists, focusing on reenforcement of the topic material presented during Phase I. This is also presented on an annual basis.

Phase III focuses on assigning specific process action teams and facilitators, to evaluate quality improvement issues and initiatives. This is an ongoing process.

2.   *TQM Staffing:* The Quality Management Board is the TQM action team that is responsible for all facets of training and implementation.

Membership on this board is a part-time, additional duty. The six members represent middle and senior military and civilian management, and all but two are department chiefs.

3.   *TQM Staff Responsibilities:* This researcher personally developed and designed the TQM training and implementation program at BACH. Members of the Quality Management Board have provided assistance as committee facilitators/trainees for quality improvement teams.

4.   *Training Topics:* Topics presented during Phase I include the following: History of TQM, Principles of TQM, Current Trends in Health Care, Success Stories in Industry and Health Care, Statistical Process Control Techniques, and the "How-To" of Implementation. (See Appendix F)

Topics presented during Phase II consist of the following: Team Building, Leadership Training, Management Effectiveness, and TQM Reenforcement.

5.   *Location of Training:* All staff and employee training occurs on-site at BACH. This researcher has received training at Health Services Command (Quality Assurance Division), Fort Sam Houston, Texas; the

Federal Quality Institute, Washington, D.C.; and at Hospital

Corporation of America (Quality Resource Division), Nashville,

Tennessee. All facilitators have been trained on-site at BACH by this

researcher.

6.   *Training Material:* All training material used at BACH has been

developed internally. The primary booklet given to all trainees is the

TQM Training Guide. (See Appendix E)

7.   *Trainees:* Training is presented on a departmental basis and is

general in subject matter, so as to be applicable to all levels of

employees.

8.   *Training Schedule:* To accommodate shift workers, Phase I training

is made available during all shifts. Due to the expense of contracting

consultants, Phase II is available only during normal duty hours.

9.   *Use of External Consultants:* Consultants are contracted only for the

specialty facets of TQM, to give additional credibility and

completeness to the training program.

ALLIANT HEALTH SYSTEM

Alliant Health System is a not-for-profit corporation located in Louisville, Kentucky. It owns and operates the Norton Hospital, a 375-bed, acute care facility; Methodist Evangelical Hospital, a 372-bed acute care facility; and the Kosair Children's hospital, a 227-bed pediatric, acute care facility. The adult hospitals are governed by a 19-member board, and a 23-member board governs the children's hospital.

Mission

The mission of the Alliant Health System is to be the leading provider of value-driven, superior quality health care in Louisville and the surrounding region.

Quality Management Organization

Insert Figure 5 about here

Definition of TQM

"Meeting the requirements of customers."

Quality Policy

Quality in everything we do and every decision we make is an attitude which we must create and nurture. We will provide those served, externally and externally, with services which conform to clearly established requirements.

We will design or modify the way we do our work in order to constantly make improvements and to prevent errors. This will assure that the right things are done the right way each and every time.

It is management's role to support employees by eliminating barriers to efficiency and quality. All employees and each supplier must adopt our standards of quality in accordance with our mission, goals and values.

Quality Improvement Steps and Process

1. *Mission, Values, Quality Policy:* Employees are expected to have a sense of ownership and must be treated as owners. They must also have information and be fully aware of the hospital's mission, values and quality policy.

2. *Management Commitment/Involvement/Action in TQM:* Top management must have a proactive, aggressive commitment.

3. *Organizing for Total Quality Management:* An organizational plan for the "infra-structure" for TQM must be developed. It should promote decision-making from the lowest level upward.

4. *Education and Training:* The philosophies and systems must be defined and explained to all employees.

5. *Customers and Requirements:* External customer expectations must be reviewed and modified.

6. *Improvement Opportunity Identification:* Systems must be developed which will enable employees at all levels to identify quality improvement opportunities.

7. *Quality Review:* An integrated, coordinated model must be developed to measure and monitor quality for all areas of the hospital (clinical, support, and administrative). This model should measure the following:

   — Competency (credentialing)

   — Appropriateness (utilization review)

   — Resource Utilization (cost)

   — Effectiveness (desired outcomes)

   — Safety/Risk Management

   — Customer Satisfaction

8. *Recognition/Reward, Appraisal, and Pay Systems:* The hospital must identify new ways of recognizing individual employees for their quality improvement efforts.

9. *Communications:* The Total Quality Management philosophy, structure, policies, activities and successes must be communicated.

10. *Integrating TQM with Existing Management Programs:* All existing management systems must be modified to assure compatibility with TQM philosophies and intent.

Quality Improvement Process

1) Define Scope of Services

2) Define Key Aspects of Service or Care

3) Determine Indicators of Quality

4) Establish Thresholds

5) Measure and Determine Current Performance

6) Establish Quality Improvement Goals

Quality Improvement Submission Process

A quality improvement idea is first submitted to the manager of the area that it concerns, for evaluation. A status report is generated and provided to the employee every 30 days thereafter. Each month, all submissions are reviewed by the Quality Improvement Opportunity

Committee (QIT). If the idea is not accepted for implementation by the department manager or the Quality Improvement Opportunity Committee, it is automatically forwarded to the Quality Management Team (QMT). Again, if the idea is not accepted, it may be referred to the Total Quality Management Council (TQMC). After the final decision is made, the recommendation is then forwarded to the Quality Management Staff (QMS), for employee notification of its outcome.

Outcomes - Examples

1) <u>Improved patient care</u> - Outpatient services and charting have been enhanced.

2) <u>Improved work processes/productivity</u> - Dietary and telecommunications have improved.

3) <u>Lower costs</u>.

4) <u>Improved job satisfaction</u>.

5) <u>Increased customer satisfaction</u> - ER, billing and parking improvements.

6) <u>Verification of proven quality</u>.

7) <u>Achievement of preferred provider status</u>.

8) <u>Increased market share</u>.

9) <u>Quality improvement plans in all departments</u>.

10) <u>TQM directly tied to performance appraisals</u>.

11) <u>Education of all employees</u>.

12) <u>Implemented Employee Quality Improvement Process (EQUIP)</u> -

Fifty percent of all submissions have been accepted.

Rewards - Examples

1) Each idea that is submitted is rewarded with a light bulb button.

2) Rewards given by department heads include the following:

Gift certificates, tickets to sporting and cultural events, group

lunches, time off with pay, fruit baskets and flowers.

3) Employees nominate Quality Employees of the Month, who are

rewarded with $25.00.

4) A Quality Awards Dinner is held annually.

TQM Training Plan

1. *Program Content:* The training plan at Alliant Health Systems consists of the following:

    (a) *Orientation:* All employees receive a two-day orientation to learn about supporting the principles and values of the organization. TQM is incorporated in all facets of this training and is purposely not separate or distinguishable. This training is conducted regularly, on a recurring basis.

    (b) *Management Training Program:* All department chiefs participate in a two-week management training course. The purpose of this course is to train the department and division chiefs in all facets of quality management, so they can train their managers and supervisors, who will, in turn, train their employees. Additionally, this program is designed to teach supervisors to encourage employees to get involved in quality initiatives.

    (c) *Facilitator Training Program:* This five-day course is provided to facilitators who will coach quality improvement teams through quality improvement processes.

    (d) *Management Training Program for Quality Improvement Teams:* To assist managers in understanding and supporting quality improvement teams, a one-day course is provided to augment management training.

2. *TQM Staffing:* The Quality Improvement Team consists of 17 members, 2 of whom are full-time quality management employees. Quality Management is only an additional duty for the other 15 members and uses approximately 25 percent of their duty time. Three of the team members have received facilitator certification from the Florida Power & Light Quality Improvement Program.

3. *Training Staff Responsibilities:* This corporation-wide training focus on quality improvement was developed by a four-person research and development team. Facilitators provide the coaching for the quality improvement teams through group dynamics and feedback.

4. *Training Topics:* Training topics during orientations include the History of the Organization, Principles and Values, A Winning Image, Marketing in a Health Care Environment, and facets of TQM. All training programs focus on customer service.

5. *Location of Training:* All TQM training is conducted on site at Alliant Health Systems. Team Leaders/Facilitators are offered additional training in quality improvement at Florida Power and Light Company in Florida.

6. *Training Material:* Training material is developed internally by the Education & Training Committee. Material is designed in a script format.

7. *Trainees:* All 4,000 employees have received the initial TQM orientation, which is designed to be applicable to all levels.

8. *Training Schedule:* Training is scheduled and conducted during all shifts, to maximize trainee participation.

9. *Use of External Consultants:* External consultants are utilized for training in Statistical Process Control techniques. This course, designed for managers, is usually three days in duration.

APPENDIX E

TOTAL QUALITY MANAGEMENT

Training Guide

BLANCHFIELD
ARMY COMMUNITY HOSPITAL

TOTAL QUALITY MANAGEMENT

DEFINITION

Total Quality Management is described by the Federal Quality Institute (FQI) as "a strategic integrated management system for achieving customer satisfaction which involves all managers and employees, and uses quantitative methods to improve an organization's processes."

ELEMENTS OF TQM

1. TQM is a way of doing business, a never-ending process.

2. TQM involves process orientation and product excellence, and flows from process excellence.

3. TQM requires the implementation of process management basic, to include:

   a. Process definition and understanding

   b. Process performance measures

   c. Collection of data and analysis

   d. Corrective action

4. TQM demands top management's long-term commitment, participation and leadership, so that continuous process improvement may flourish.

5. TQM involves organizational goal-setting and review.

6. TQM is customer-focused.

7. TQM employs a disciplined process improvement methodology using a wide variety of statistical-based tools and a *group dynamics* technique.

8. TQM provides for top management motivation of managers and workers to not only do the work, but also to improve processes within their area of responsibility.

9. TQM employs *teaming* structures, including extensive use of cross-functional teams.

10. TQM involves celebration of success and rewards for performance.

11. TQM begins and ends with training.

OPPORTUNITIES FOR IMPROVEMENT

Who Has Responsibility?

Management
80%

Worker
20%
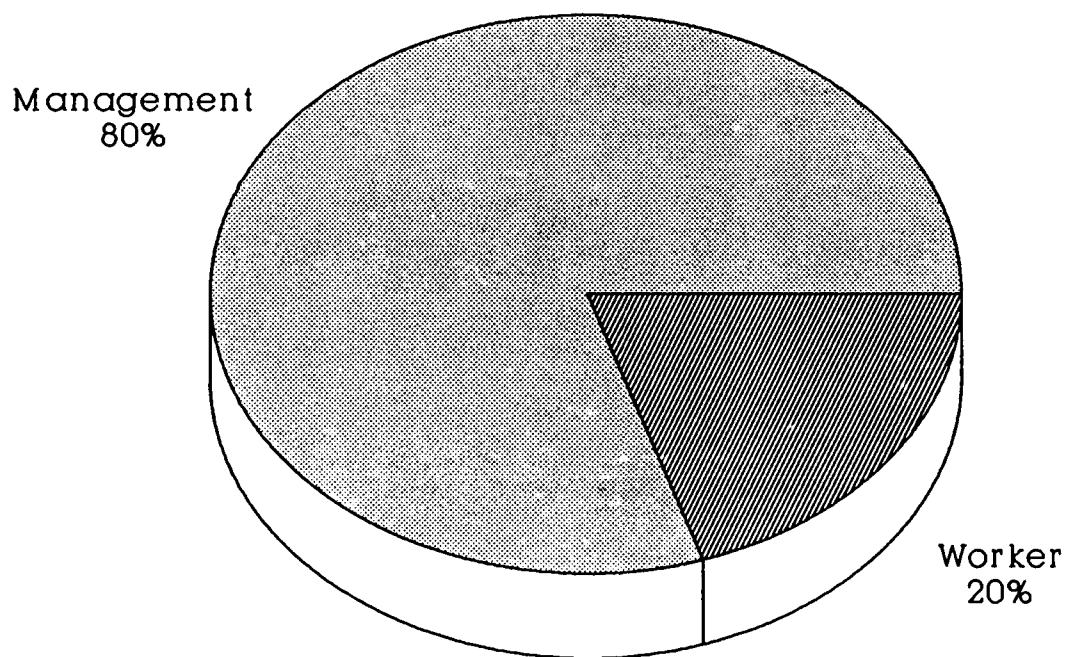
TQM APPLIED UNIVERSALLY
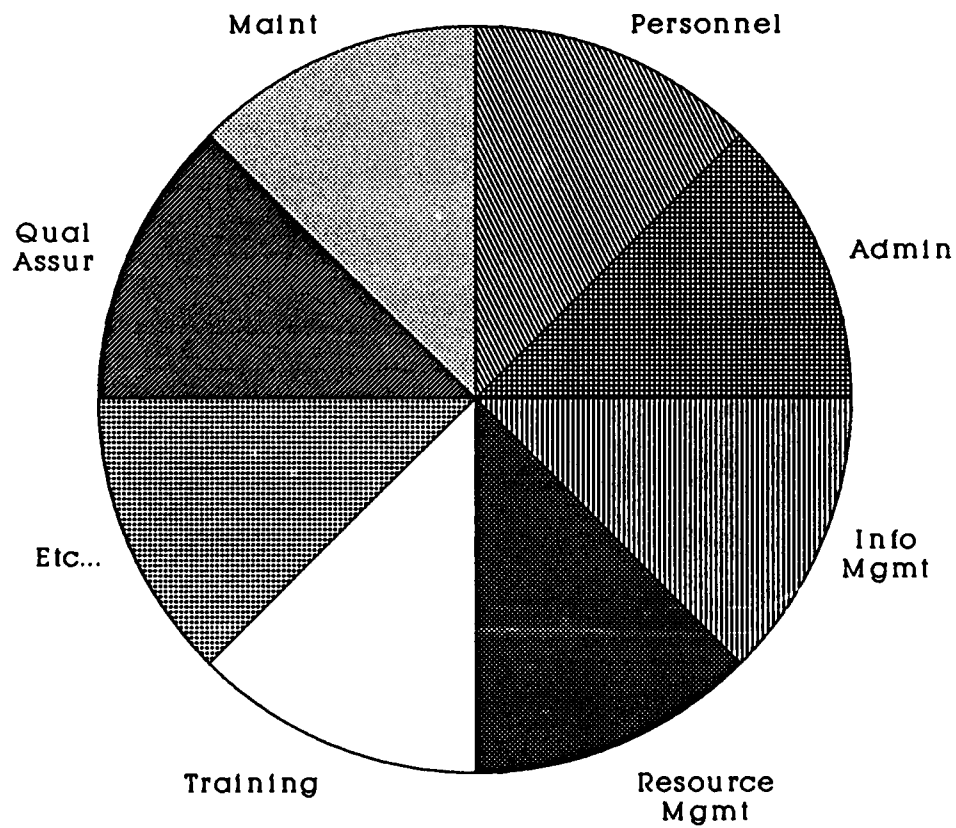
QUALITY IMPROVEMENT PROCESS

Steps:

1. Identify the problem.

2. Identify failure costs and initiate improvement projects.

3. Identify causes of major costs.

4. Identify solutions to reduce or eliminate causes.

5. Compare cost of solutions implementation with the expected failure cost reduction.

6. Implement solutions which have acceptable payback.

Meeting Requirements:

- Identify objective.

- Develop agenda.

- Conduct discussion.

- Analyze data.

- Record minutes.

- Evaluate meeting.

- Have five to seven participants.

- Limit to one hour.

Participants:

- Facilitator

- Leader

- Recorder

- Timekeeper

- Members

MEETING AGENDA

Team: _____   Leader: _____

Date: _____   Recorder: _____

Time: _____   Timekeeper: _____

Location: _____   Facilitator: _____

                                 Action Individual:

                                 _____

1. **Objectives:**

   _____

   _____

2. **Review Roles:**   _____

3. **Agenda Review:**   _____

4. **Agenda Items:**

   a. _____   _____

   b. _____   _____

   c. _____   _____

   d. _____   _____

5. **Review Minutes.**

6. **Evaluate Meeting.**

7. **Plan Next Meeting.**

MEETING MINUTES

Team: _____   Leader: _____

Date: _____   Recorder: _____

Time: _____   Timekeeper: _____

Location: _____   Facilitator: _____

Members Present:

_____   _____

_____   _____

_____   _____

1. **Clarified Objective:** _____

   _____

   _____

2. **Reviewed Roles**

3. **Reviewed Agenda**

4. **Agenda Items Discussed:**

   a. _____

   b. _____

   c. _____

   d. _____

   _____

MEETING EVALUATION

Rate this meeting on the following scale:

1   2   3   4   5   6   7   8   9   10

[POOR] ←   →**[EXCELLENT]**

SUGGESTIONS FOR IMPROVEMENT OF THE MEETING

_____

_____

_____

_____

SUCCESSFUL ACCOMPLISHMENTS OF THE MEETING

_____

_____

_____

_____

APPENDIX F

BACH

LESSON PLAN I

HISTORY OF TOTAL QUALITY MANAGEMENT

Prior to the 1920s, quality of work in small shops in the United States was monitored by individuals running a production process or by inspectors. With the industrial revolution came the innovative idea of statistical process control and the measurement of samples as an alternative to inspecting each and every item on an assembly line. This concept also flourished during the war effort of the 1940s (Batalden, 1989).

Unfortunately, after World War II there was very little progress in management technology. The United States was prosperous, and there was limited interest in using statistical process control in the decision-making aspects of management. America had a clear advantage in the global market, and there were great demands for our products and no incentive to develop more efficient ways of production.

Sometime around the 1970s it became apparent that the United States was lagging behind and countries like Japan were becoming

very noticeable and very competitive (Juran, 1989). It is interesting
to note that earlier in the 1950s, Japan invited W. Edward Deming
and Joseph M. Juran from the United States to teach Japanese
engineers statistical techniques in production control (Darr, 1989).
While this application of such processes was not called *TQM*, it was
the beginning of a do-it-right-the-first-time phenomenon for quality
management. It is a concept which now dominates American industry
and, more recently, health care (Juran, 1989). TQM is a proven
management philosophy and, as history has shown, will be the
foundation of success for the future.

<div align="center">

LESSON PLAN II

PRINCIPLES OF TOTAL QUALITY MANAGEMENT

</div>

The philosophy of Total Quality Management focuses on
principles taught by Dr. W. Edward Deming and are well expressed by
Dr. Paul B. Batalden of Hospital Corporation of America [HCA]
(Gillem, 1988).

> **Point 1 -** **Create constancy of purpose for service
> improvement.** Concern should be for long-term
> goals and expressed to all employees.

Point 2 - **Adopt the new philosophy.** Employees must understand that it is possible to do things right the first time.

Point 3 - **Cease dependence on inspection to achieve quality.** The most important goal should be for improving an entire process, not just a portion.

Point 4 - **End practice of awarding business on price alone; make partners out of vendors.** Health care organizations should look at the total cost of a product or service, and not just focus on the price.

Point 5 - **Constantly improve every process for planning, production and service.** To achieve quality, all employees must know how to make improvements and be allowed to do so.

Point 6 - **Institute training and retraining on the job.** Continuous training is essential in health care.

Point 7 - **Institute leadership for system improvement.**
To improve the performance of a whole group with
various levels of achievers, the system has to be
improved.

Point 8 - **Drive out fear.** Employees must not be afraid of
making suggestions or decisions.

Point 9 - **Break down barriers between staff areas.**
Eliminate competition among departments and
stress teamwork.

Point 10 - **Eliminate slogans.** It is better to tell employees
what is being done to make their job easier than to
insult them by telling them to do a better job.

Point 11 - **Eliminate numerical quotas for the work force
and numerical goals for the management.** If
the focus is on *quantity*, it will not be on *quality*, and
quality will suffer.

Point 12 - **Remove barriers to pride of workmanship.**
Compensation and financial rewards are important,
but so is pride in performance.

Point 13 - **Institute a vigorous program of education and
self-improvement for everyone.** Quality begins
and ends with training.

Point 14 - **Put everyone to work on the transformation.**
Everyone's help is needed, and resources cannot be
wasted.

LESSON PLAN III

CURRENT TOTAL QUALITY MANAGEMENT TRENDS

IN HEALTH CARE

According to a recently conducted survey, researchers for
Organizational Dynamics, Inc. (ODI) in Massachusetts indicated that
more than 90 percent of the executive-level respondents expressed a
concern in the quality of health care. Ninety-three percent felt that a
reputation for high quality was necessary for survival. ODI's own

survey indicated that 87 percent of top-level executives agreed that neglect in quality issues has caused severe problems within U.S. companies today.

Nine out of ten health care executives felt that quality improvement initiatives should involve all employees. Ninety-seven percent indicated that middle managers should be trained to lead the effort, and 96 percent believed that quality goals should be a part of the hospital's strategic plan and that performance appraisals and rewards should be linked to the same.

Unfortunately, the reality of this pursuit in quality management is reflected by the 24 percent of the respondents who stated that employees have a clear understanding of quality improvement goals. Only 41 percent indicated that their organization had the type of environment necessary for quality improvement initiatives (Powers, 1989).

These figures indicate that quality issues in health care dominate the concerns of the executive staff, but the education of entire organizations has only begun. The effort must ensure that *all* participants are knowledgeable and receptive to innovative initiatives of continuous improvement.

LESSON PLAN IV

SUCCESS STORIES IN INDUSTRY AND HEALTH CARE

The following stories were obtained from successful quality improvement initiatives within industry and health care.

1. The Federal Express Company has been able to cut package delivery costs by a third, while increasing revenues 500 percent in the past five years, by using Total Quality Management techniques. This was accomplished by tracking 12 critical types of failures that occur in service, and then weighing them according to their importance. Weights were totaled into a single *quality indicator*, and the goal was to eliminate all failures and achieve a zero result, or "perfection." (ODI Newsbrief, Vol 5, No. 1)

2. In 1984, when Xerox Corporation pursued a quality improvement process, it realized its goals would not be achieved overnight. The results today indicate that the organization's average manufacturing costs have been reduced by 20 percent; the time it takes to bring a new item to the market has been reduced by 60 percent; and Xerox Corporation has been has been able to regain significant market shares. (American Society for Quality Control)

3. Naval Air Systems Command has been able to achieve significant results from the implementation of numerous quality improvement programs. Since 1982, the unit flyaway cost of naval aircraft has decreased by 24 percent, and aircraft readiness (full mission capability) has increased by 23.4 percent, while the reliability and maintainability of new weapon systems has doubled. Through the dedication to a continuous improvement philosophy, billions of dollars have been saved. (NAVAIR, 1989 Presidential Award Nomination)

4. In 1987, the Naval Publications & Forms Center implemented Total Quality Management principles to improve their processing of over 200,000 customer requests per month and accounting support provided to 30 agencies. Emphasis focused on customer service, ordering procedures, and warehouse operations. Over 85 percent of the time, the Forms Center is now able to exceed its ability to process requests within its established goal of seven days. (Quality Improvement Prototype, Series 89-01)

5. A savings of $3.5 million for the federal government was realized in 1987, when just one year prior the Ogden Service Center implemented Total Quality Management principles to process over 30 million tax forms. Managers and employees began working within

teams to improve operations and customer service. The resulting

efficiency now allows for faster means of filing. (Quality Improvement

Prototype, Series 89-05)

6. In 1982 the Lewis Research Center sought to reestablish its

role of being a significant contributor to the NASA aerospace mission.

To achieve this former status, Lewis revised its management practices

to include providing quality customer service and employee

participation in all facets of managing the Center. By 1988

tremendous improvements were realized; inventions increased by 50

percent and production of technical manuals increased by 30 percent.

(Quality Improvement Prototype, Series 89-02)

7. In 1985 the Department of Veterans Affairs Medical Center

in Kansas City sought to improve patient care by using Total Quality

Management techniques. Focusing on clinical Quality Management,

the program evaluated all aspects of patient care and included

involvement by staff members and patients, for the purpose of gaining

their recommendations for improvement. Conclusion of the effective

program resulted in improved mortality rate, length of stay, and

overall patient satisfaction. (Quality Improvement Prototype, Series

89-06)

8. In March 1989, at the United States Air Force Medical Center at Wright Patterson Air Force Base in Ohio, a process action team was created to assess the operational weakness of the Patient Appointment System. Methods for evaluating the problem were data collection, flow charting, and cause-and-effect diagrams. As a result of these activities to evaluate data measures, appointment clerk positions were aligned and efficiency of clerks increased. This resulted in a 25 percent increase in the number of telephone calls being answered. Other initiatives included the development of a clerk training plan, the recommendation for standardization of the process for making and obtaining consults from specialists, the elimination of variation in clerks' tasks, and the development of a reference manual as a quick guide for referring physicians.

LESSON PLAN V

STATISTICAL PROCESS CONTROL TECHNIQUES

The following are examples of quality improvement tools used in statistical process control and problem solving (Juran, 1989):

1. Problem solving begins with identifying problems.

Brainstorming is a quality improvement tool that can be used to develop a list of problems. Brainstorming is a group technique that generates new and creative ideas. Problems must be prioritized, and to facilitate this process, data must be gathered to evaluate the magnitude of the issues identified. A tool that can assist in identifying the most important problems on which to focus efforts is the *Pareto Analysis*. This technique is a ranked comparison of factors and reveals the greatest concentration of a few factors affecting an entire process. This is where efforts can also be devoted to "obtaining the highest return on investment." This analysis can be visually displayed on charts and graphs, after determining the cumulative-percent of each contributor identified on a rank-ordered list.

Pareto Chart:

— Use a check sheet for tabulating the frequency of different categories.

— Order the categories by frequency from largest to smallest.

— Plot the order frequency on a bar graph.

— Convert frequencies to percentages.

$$\% = \frac{Frequency}{Total} \times 100$$

— Replace Frequency Scale with Percent Frequency Scale.

— Calculate cumulative frequencies and percentages.

— Plot cumulative percent as a line graph over the bar graph. (Example in Figure 1)

2. After problems have been clearly identified, projects for improvement are established and teams fo. investigation are assigned.

3. The project team or process action team is tasked with collecting and analyzing data on the factors influencing a problem. The Pareto Analysis can be used to further define what the problem is, if additional clarification is deemed necessary. A *flow diagram* is a graphic representation of a sequence of a process that produces an output.

Flow Chart:

— Create a team familiar with the process.

— Determine start and finish points of the process.

— Display the steps of the process in sequence.

— Account for aii suppliers and customers of the process. (Example in Figure 6)

It can assist in visualizing bottlenecks, unique problems ar ` u.necessary steps in a process as a whole, while overall *data collection* can be accomplished by data sheets and checklists to answer specific questions posed by the evaluators of a process. These tools assist in

the overall understanding of a process and focus on working with factual and valid information obtained.

4. Once team members agree and fully understand what the problem activity process is, attention can be devoted to the causes of the problem. Brainstorming can assist in clarification of causes, and *cause-and-affect diagrams* can assist in revealing what the root cause of a problem may be. This type of diagram is a visual tool displaying the interrelationships of causal factors. Though interrelationships are qualitative, this diagram is a prelude to the development of data. Flow diagrams and *stratification* are also useful. Stratification allows for separation of data into categories for identification of those which contribute to the problem. Displaying stratification results in graphic form (such as a bar graph) is especially helpful in observing the factors that stand out the most.

5. Once theories are made concerning problems, additional data must be collected to test the theories. Flow diagrams are useful for identifying points requiring further data collection and needs for other statistical process tools for further analysis.

Insert Figure 6 about here

---

6. At this point there should be a clear picture as to the root causes of the problem.

7. Now it is time to seek solutions to the problems identified. The intent is to prevent future causes of problems, and this process begins with the development of solutions. This also facilitates a synergistic combination of dependent suggestions presented for solutions. Useful tools for this process could be brainstorming, flow diagrams, stratification, and cause-and-effect diagrams.

8. Factors such as cost, time, personnel and resistance should be considered prior to the selection of a proposed solution. A test of the selection should be made before implementation and involve the necessary collection of data for analyzing further whether the selection will work. Flow diagrams can be useful in revealing process effects.

9. Resistance to change will exist and should be thoroughly analyzed through brainstorming techniques.

10. Implementation is a joint effort by the quality improvement team members and the personnel affected by the process. Efforts should be made to introduce quality improvement efforts cautiously, and tools such as flow diagrams should be used to depict the old-versus-new processes.

11. After implementation of a solution, additional data should be collected to analyze the performance of the new process. Results must be confirmed and presented with factual data.

12. Finally, the new process and standards of quality established must be maintained through the monitoring of performance. This can be done with graphs and charts, which are pictorial representations of quantitative data made up of points, lines, numbers, letters, words and colors. Line graphs represent a connection of points to show relationships of variables, while bar graphs display relationships even though one variable is not always numeric. Pie charts are useful in revealing proportions and their relationship to a process as a whole.

LESSON PLAN VI

THE 'HOW TO' OF IMPLEMENTATION

A hospital-wide quality improvement process could consist of the following implementation strategy used by the Hospital Corporation of America (HCA) in Nashville, Tennessee. The process is known as *FOCUS - PDCA*:

FOCUS - PDCA

F ind a process to improve.

O rganize a team that knows the process.

C larify current knowledge of the process.

U nderstand causes of process variation.

S elect the process improvement.

P lan - data collection.

D o - data analysis.

C heck - lessons learned.

A ct - continue improvement.

First, the process selected for improvement should be one that
is quality-oriented and meets the goals and objectives of the hospital.
Then, a team of persons familiar with the process should be
organized. Process Action Team (PAT) members should include
internal and external customers that represent participants of the
entire process. Knowledge of the process should be clarified by the
PAT and boundaries of responsibility identified. To determine
measurable characteristics for obtaining data, there should also be an

understanding of the causes of process variation (differences). At this point an improvement method can be developed and a plan can be designed for continued data collection and further process improvement. The improvement action would be implemented and the results and lessons learned would be evaluated for continued improvement.

Roles of the PATs

Roles. (Who does it?) All participants are active team members, even though they may have an additional role.

I.   *Members* - are responsible for both the content and process of team meetings. They share responsibility for focusing on the objective, contributing information, analyzing data, staying on track, making decisions, managing time, leading and continually improving the team.

II. *Timekeeper* - is a team member who has specific responsibility for managing time.

III. *Recorder* - is a team member who has specific responsibility for recording the minutes of the meeting. The recorder records the minutes on a flipchart in the meeting and transfers them to the organization's information management system for distribution following the meeting.

IV. *Leader* - has the specific responsibility for guiding the team through the meeting process to achieve the objective. The leader is involved in the meeting content, as well as the process. The leader is not responsible for making all decisions in a meeting, nor is the leader responsible for the success or failure of the team. The leader is responsible for providing direction and support for the team.

V. *Facilitator* - is not a member of the team, but a person outside the group who serves as a coach or consultant for the team. The facilitator has specific responsibility for focusing on the meeting process. If variations in the meeting process reach a point that can be considered attributable to "special causes," the facilitator intervenes. The purpose of the intervention is to eliminate the causes of the variation and get the team back on track. The facilitator provides coaching, training, and feedback for the leader and team before and after the meeting, to address "common causes" of variation and continuously improve the team process. The extent of the facilitator's involvement with a team will depend on the experiences and skill of the team. The facilitator's goal should be to develop the skill and competence of the team to function independently.

APPENDIX G

TOTAL QUALITY MANAGEMENT

Training Guide

ALLIANT HEALTH SYSTEM

TOTAL QUALITY MANAGEMENT

The TQM process is based upon a philosophy and system of quality review and quality improvement. Since TQM is a long-term corporate strategy, emphasis must be given during the first two years on setting in place the appropriate processes which will generate and sustain long-term positive results rather than focusing totally on short-term gains. To that degree, many of the early goals for TQM will be primarily "process" goals. Whether these goals are met or exceeded will be considered to be significant "outcomes" of the TQM strategy for the first year.

At Alliant Health System, the TQM process has already generated significant positive results for the corporation in at least four areas: 1) education and training, 2) problem identification, 3) quality indicators, and 4) work process improvement.

Education and Training

The education and training process involves all employees of the hospitals. The subjects have ranged from overall quality awareness, quality review/quality improvement goal setting, process management, and many others. In general terms, the unquestioned outcome of this training is that of remolding the corporate culture,

even the corporate language. Quality and quality improvement

becomes the prevailing force for decision making at all levels. Rather

than depending on traditional sloganisms and faddish guest relation

programs, all employees have begun to be enveloped in the structured

thought processes of defining their customers, learning those

customers' needs and expectations, understanding that their personal

success and the success of the corporation depends on meeting or

exceeding those customers' expectations. In this way, quality is

becoming institutionalized and our corporate values are being lived.

Problem Identification

The problem identification system for employees was

implemented in May 1987, known as EQUIP (Employee Quality

Improvement Process). This program allows any employee to identify

quality improvement opportunities, barriers to error-free work, or

simply their ideas on how anything could be improved in the

corporation. These opportunities are submitted on EQUIP forms to a

central clearing office that records the idea, then forwards it to the

manager who seems most likely to be the owner of the issue

identified.

Staff Research

Much has been written on the subject of quality (in and out of health care) during the last few years. Staff research included several hundred articles and over 30 books. Few service industries were referenced--none in health care--as having implemented quality management processes focusing on all aspects of the work environment.

Due to the demand for expertise in the subject of American industry, there have evolved many writers, lecturers, and consultants on quality management. Staff researched the most recognized of these "gurus" in today's environment: W. Edward Deming, Joseph Juran, Philip Crosby, Tom Peters, Ron Zemke, and Armand Feigenbaum. Such research included attending Peter's famous "Skunk Camp" retreat in Pajaro Dunes, California, as well as Crosby's Quality College in Winter Park, Florida. Each of these gurus has his own philosophies and approaches to quality management and quality improvement processes. Each has applicability to health care, but none have worked extensively with healthcare clients to translate those approaches into comprehensive, structured work plans for the healthcare environment.

Industries' Models Translated to Healthcare

This research, including observations made firsthand during site visits, resulted in the identification of common elements of successful quality management strategies. Elements were identified that are applicable and will work in health care — an industry with different missions, customers, work environments, and such a diverse network of people working in it, as compared to the manufacturing sector that has pioneered quality management strategies in this country.

Total Quality Management is a Never-Ending Process

The implementation of Total Quality Management at Alliant Health System is considered to be a long-range strategy to literally mold the corporate culture to one driven by quality and quality improvement. The results are expected to be extraordinary. Simply stated, by focusing on meeting the requirements (quality in fact and quality in perception) of external customers, we expect to increase volumes, revenues and hence market share. By focusing on meeting requirements of internal customers and improving work processes, we expect to contain or decrease costs, therefore being even more price

competitive and financially successful as well as meeting other goals such as employee satisfaction, etc.

Quality management and quality improvement is a never-ending process, and we must never be satisfied. Without question, however, the results to date have proven the wisdom of our corporate commitment to Total Quality Management. Customer satisfaction is being increased, productivity improved, and employee morale improved, and expenses are being reduced in areas targeted for specific QI activities. Measurable quality indicators have been established and are being monitored, with quality improvement goals being pursued in all departments. The significant positive outcomes achieved to date are only small signals of anticipated future results.

We are committed to the principles and process of quality management; we are setting our goals high; we are dedicated to continuously improving patient care in all services we provide, as well as achieving and maintaining a competitive advantage in our marketplace through the continuous improvement of quality.

GETTING MOVING ON TOTAL QUALITY MANAGEMENT

<u>Key Action/Decision Steps</u>:

1. *Get literate*

   - Literature, gurus, industry and health care site visits

2. *Establish management commitment*

3. *Appoint in-house guru/staff*

4. *Decide on consultants vs. in-house*

5. *Develop action plan*

6. *Develop TQM infrastructure*

7 *Begin education and training*

   - Quality awareness, TQM tools, techniques

8. *Start quality review measures and quality improvement goals*

   - Corporate-wide, departments, medical staffs

   - Integrate with other systems

9. *Begin quality improvement teams*

10. *Develop support programs*

    - Reward and recognition, communications, etc.

APPENDIX H

ALLIANT HEALTH SYSTEM LESSON PLANS

TQM education and training materials from the Alliant Health

System could not be made available for inclusion in this study, due to

these items being considered proprietary in nature.

TABLES

Table 1

<u>**Demographic Data of BACH Personnel**</u>

Status	Frequency	Percentage
<u>Status</u>		
Military	57	57%
Civilian	43	43%
<u>Sex</u>		
Male	39	39%
Female	61	61%
<u>Age</u>		
Under 18	0	0%
18-35	64	64%
36-50	24	24%
51-64	12	12%
Over 64	0	0%
<u>Educational Level</u>		
Non-High Sch Grad	2	2%
High School Grad	15	15%
Some College	34	34%
Four-Yr College	33	33%
Advanced Degree	16	16%

Table 2

<u>Demographic Data of Alliant Personnel</u>

Status	Frequency	Percentage
Status		
Not	N/A	N/A
Applicable		
Sex		
Male	40	40%
Female	60	60%
Age		
Under 18	2	2%
18-35	30	30%
36-50	45	45%
51-64	23	23%
Over 64	0	0%
Educational Level		
Non-High Sch Grad	4	4%
High School Grad	17	17%
Some College	34	34%
Four-Yr College	33	33%
Advanced Degree	12	12%

Table 3

Assessment of Level of TQM Knowledge & Expertise

BACH	vs	ALLIANT
mean 4.78		mean 6.98
median 5		median 7
mode 5		mode 7

Table 4

<u>**Identification of Customer Quality Service Awareness (QSA)**</u>

BACH	vs	ALLIANT
10%		20%

Table 5

<u>Pareto analysis of training topics - BACH</u>

(Order of Appear- ance) Training Topic	Mean	Train- ing Topics Rank Ordered	Mean	Magni- tude of Contri- bution (% of Total)	(Sum of %) Cumu- lative Percent
A	11	A	11	16.7	16.7
B	10	B	10	15.2	31.9
C	5	E	9	13.6	45.5
D	4	F	8	12.1	57.6
E	9	K	7	10.6	68.2
F	8	J	6	9.1	77.3
G	3	C	5	7.6	84.9
H	1	D	4	6.1	91.0
I	2	G	3	4.5	95.5
J	6	I	2	3	98.5
K	7	H	1	1.5	100.0
Total			66	100.0	

Key: A - History of TQM
B - TQM Principles, Values, Responsibilities & Quality Awareness
C - Benefits of Quality Policy, Planning, & Goal Setting
D - TQM, Strategic Planning & Marketing
E - Internal & External Customer Service
F - Current Trends & Success Stories
G - Costs of Poor Quality
H - Measuring Quality with Statistical Process Control Tools
I - The "How-To" of Implementation
J - Management Effectiveness & Team Building
K - Process Management

Table 6

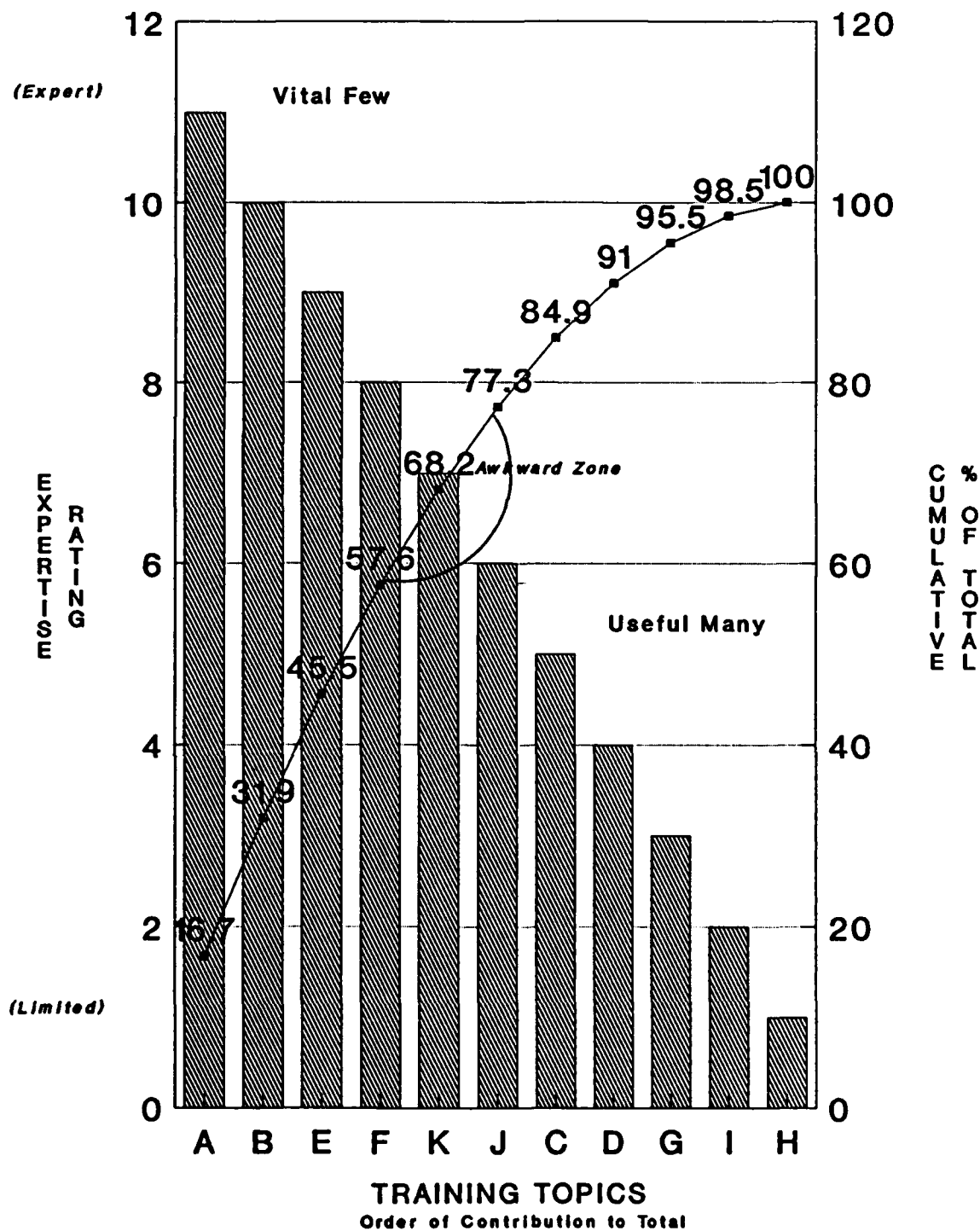<u>Pareto analysis of training topics - BACH, continued</u>

Table 7

Pareto analysis of training topics - Alliant

(Order of Appear-ance) Training Topic	Mean	Train-ing Topics Rank Ordered	Mean	Magni-tude of Contri-bution (% of Total)	(Sum of %) Cumu-lative Percent
A	6	B	11	16.7	16.7
B	11	G	10	15.2	31.9
C	7	D	9	13.6	45.5
D	9	E	8	12.1	57.6
E	8	C	7	10.6	68.2
F	2	A	6	9.1	77.3
G	10	K	5	7.6	84.9
H	1	J	4	6.1	91.0
I	3	I	3	4.5	95.5
J	4	F	2	3	98.5
K	5	H	1	1.5	100.0
Total			66	100.0	

Key: A - History of TQM
B - TQM Principles, Values, Responsibilities & Quality Awareness
C - Benefits of Quality Policy, Planning, & Goal Setting
D - TQM, Strategic Planning & Marketing
E - Internal & External Customer Service
F - Current Trends & Success Stories
G - Costs of Poor Quality
H - Measuring Quality with Statistical Process Control Tools
I - The "How-To" of Implementation
J - Management Effectiveness & Team Building
K - Process Management

Table 8

<u>Pareto analysis of training topics - Alliant, continued</u>
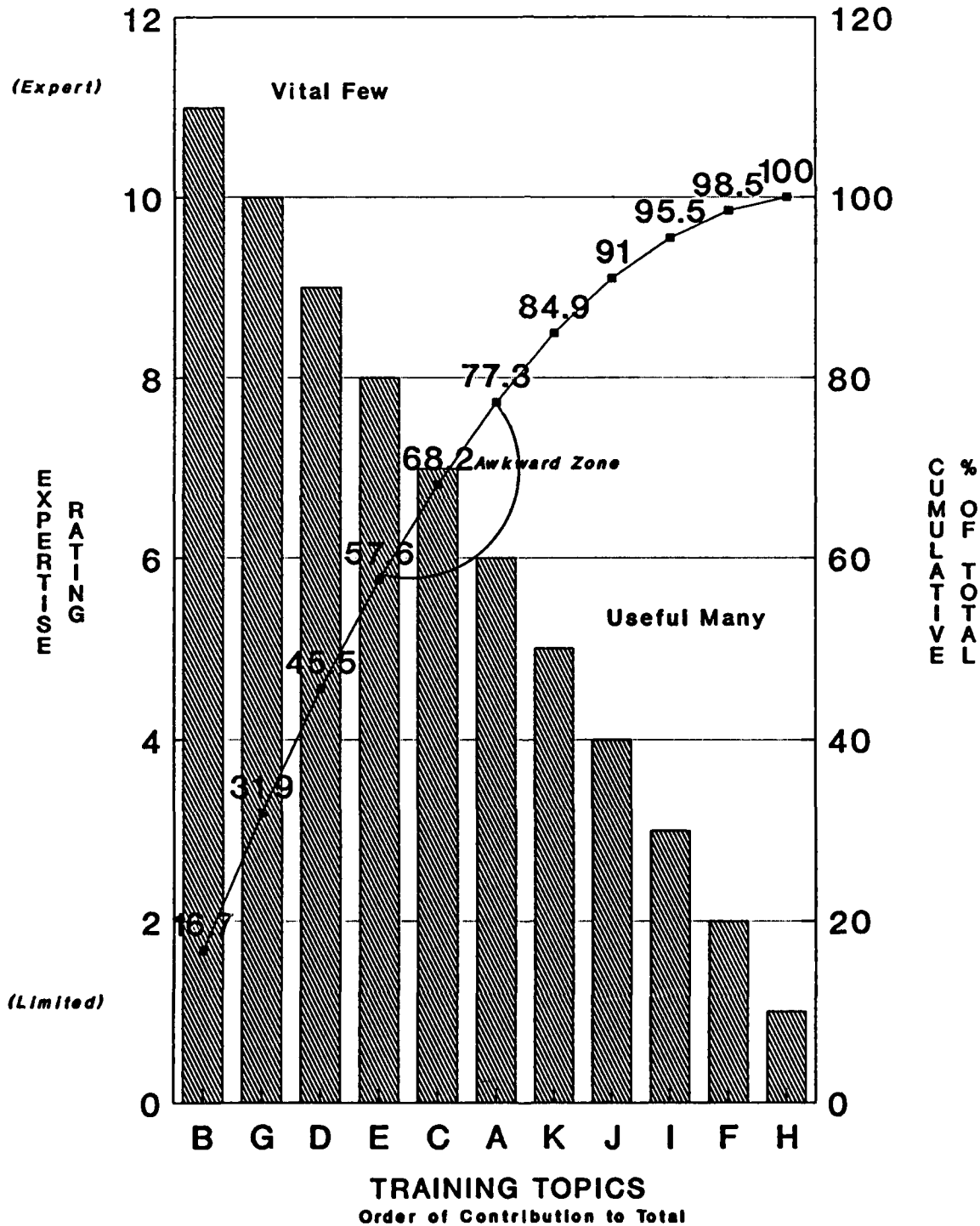
Table 9
Stratification of Program Satisfiers

BACH   ALLIANT

KEY

A - Met Expectations   D - Facilitators Well Trained
B - Orientation was Beneficial   E - Training Material Useful
C - Supervisor's Knowledgeable   F - Training Program Rating
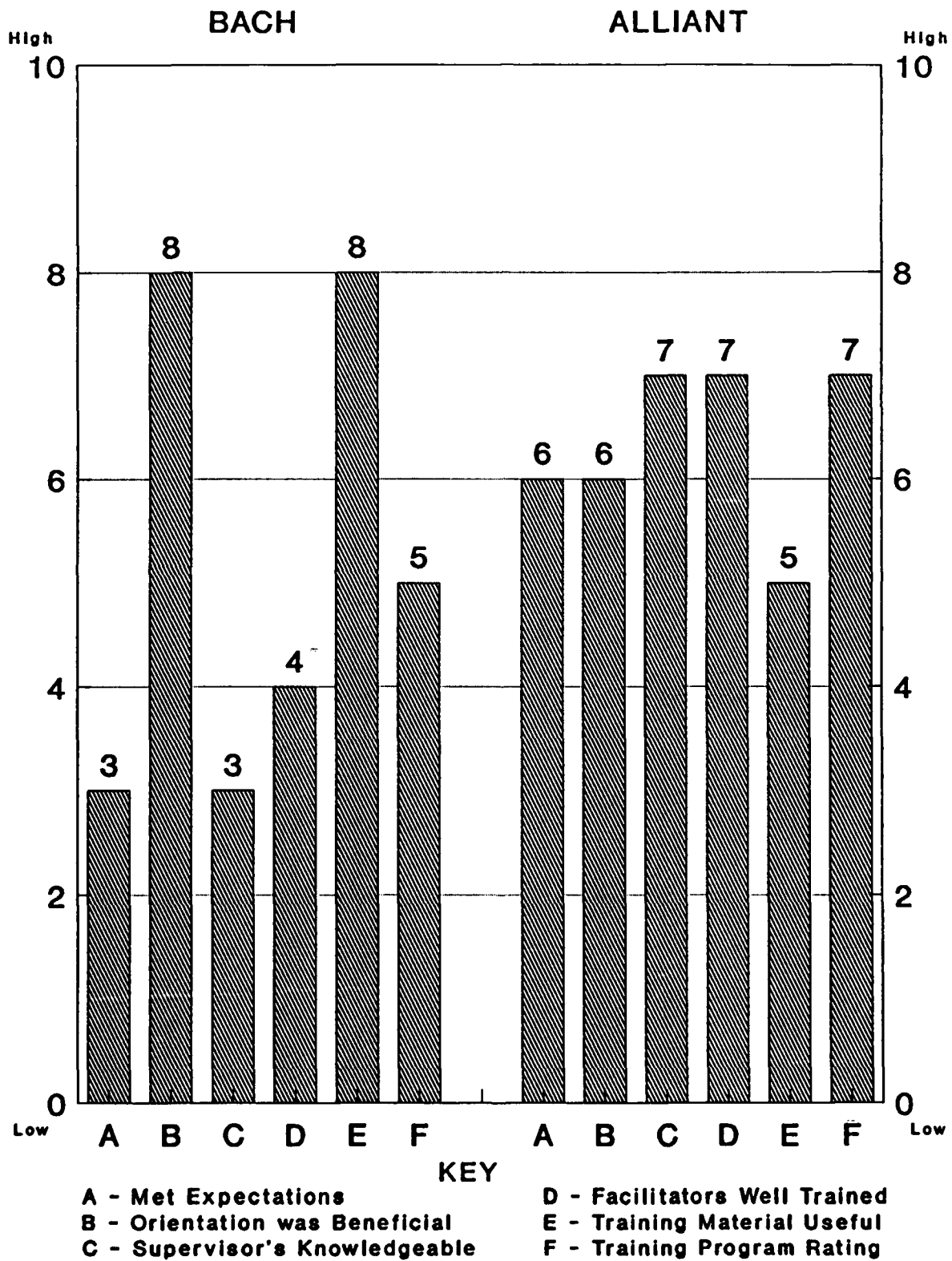
Table 10

Cause & Effect of Program Structure

1.

Orientation

Facilitator Training
Program

Consultants

Team Training

BACH
Training Program
(Present)

2.

Orientation

Facilitator Training
Program

Management Training
Program

Team Training

ALLIANT
Training Program
(Present)

3.

Orientation

Facilitator
Training
Program

Employee
Training
Program

Management
Training
Program

Team
Training

Consultants

Improved,
Combined
Training Prog

Figure Captions

Figure 1. Pareto Chart example.

Figure 2. Example of stratification.

Figure 3. Example of cause & effect diagram.

Figure 4. BACH Quality Management organization chart.

Figure 5. Alliant Quality Management organization chart.
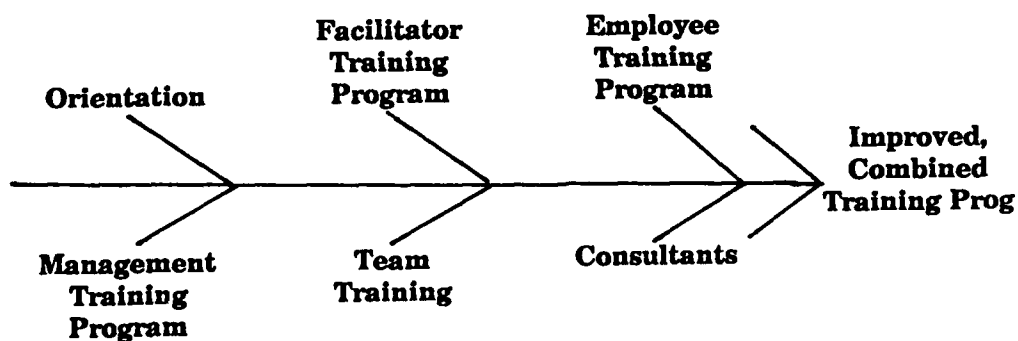
Figure 6. Examples of symbols used to construct a flow diagram.

Figure 1. Pareto chart example.

Step 1			Step 2
Topic	Tally	Total	
History of TQM	ᴧᴧᴧᴧ ı	6	– 3
SPC	ᴧᴧᴧᴧ ᴧᴧᴧᴧ ᴧᴧᴧᴧ ᴧᴧᴧᴧ 1111	24	– 1
Implementation	ᴧᴧᴧᴧ ᴧᴧᴧᴧ	10	– 2
Principles of TQM	111	3	– 4
TOTAL		43	
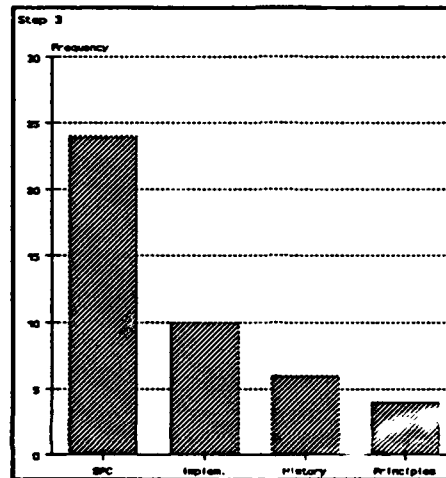
Step 4				Step 6
			Cumulative	
Topic	Freq	Percent	Freq	Percent
SPC	24	55.8	24	55.8
Imple.	10	23.3	34	79.1
History	6	14.0	40	93.0
Principles	3	7.0	43	100.0

<u>Figure 2.</u> Example of stratification.

Training Attendance

# of Trainees

Educational Level of Personnel

Figure 3. Example of cause & effect diagram.

Figure 4. BACH quality management organization chart.

```
                    ┌─────────────┐
                    │  Commander  │
                    └──────┬──────┘
                           │
             ┌─────────┐        ┌──────────────┐
             │   E C   │--------│  Committees  │
             └────┬────┘        └──────────────┘
                  │
             ┌─────────┐
             │   QMB   │
             └────┬────┘
                  │
   ┌──────────┬───┴───┬──────────┐
┌─────┐   ┌─────┐  ┌─────┐   ┌─────┐
│ PAT │   │ PAT │  │ PAT │   │ PAT │
└─────┘   └─────┘  └─────┘   └─────┘
```
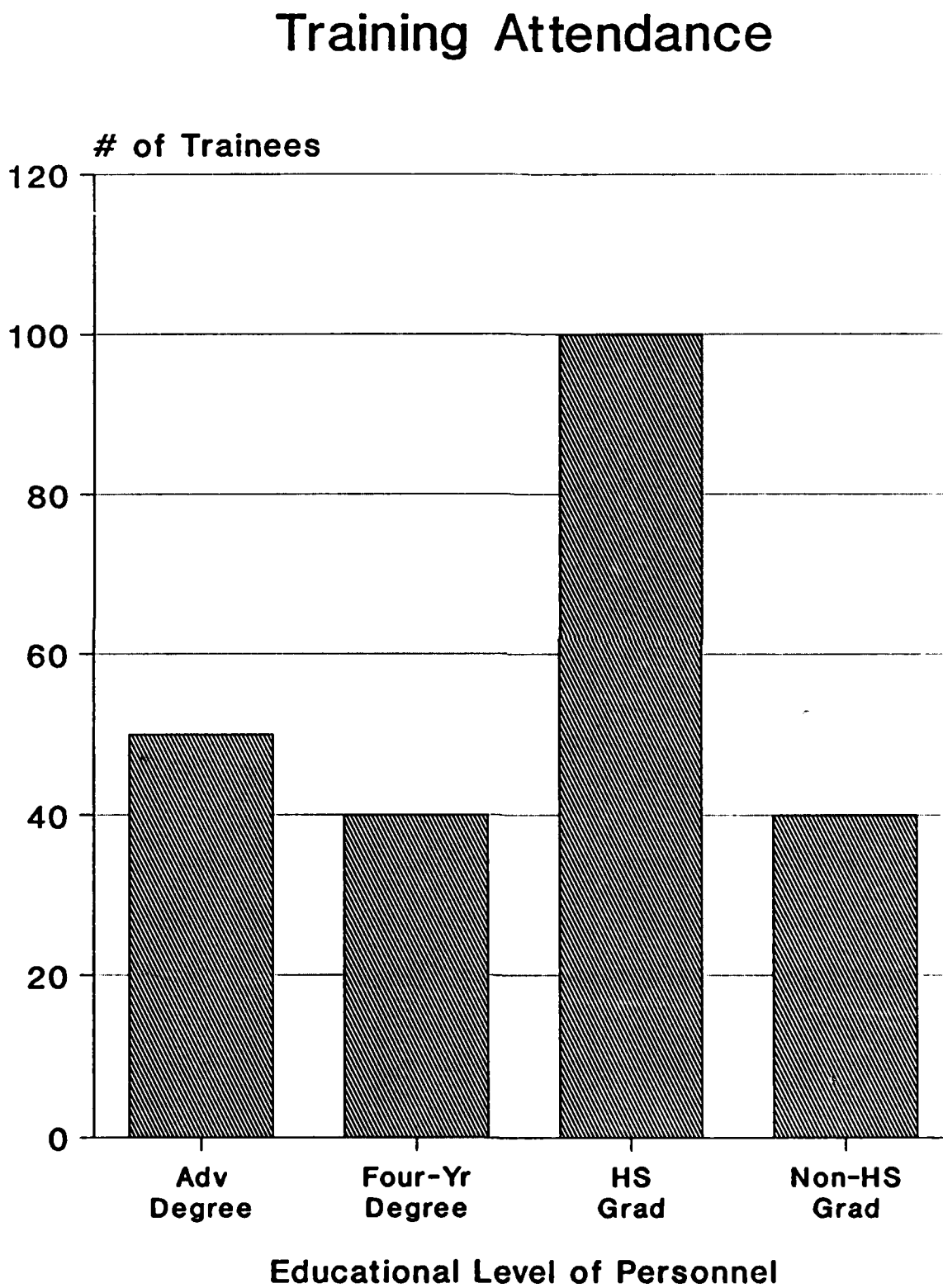
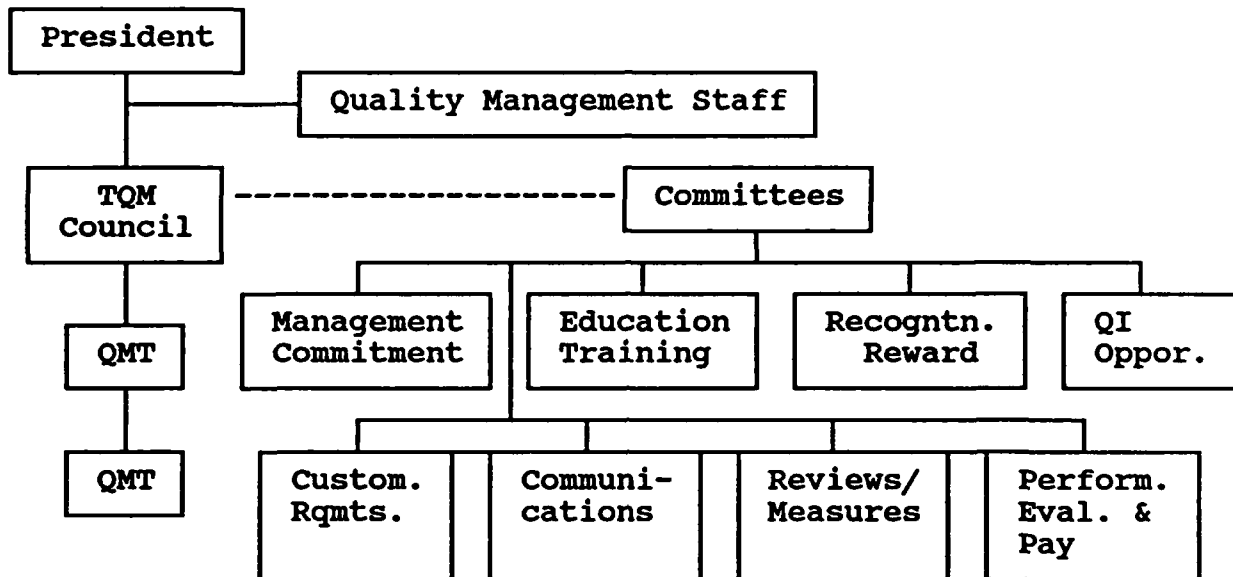**Executive Committee (EC)** - Composed of the Commander, Deputy Commander Administration, Deputy Commander for Clinical Services, Chief Nurse, and the Command Sergeant Major.

Quality Management Board (QMB) - Composed of a Chief of Quality Management and five military and civilian executives.

Process Action Teams (PAT) - Assigned as needed for specific issues.

Figure 5. Alliant quality management organization chart.

```
┌──────────────┐
│  President   │
└──────┬───────┘
       │        ┌──────────────────────────────┐
       ├────────│  Quality Management Staff     │
       │        └──────────────────────────────┘
┌──────┴───────┐                    ┌──────────────┐
│     TQM      │ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─│  Committees  │
│   Council    │                    └──────┬───────┘
└──────┬───────┘                           │
       │      ┌─────────────┬──────────────┼──────────────┬─────────────┐
┌──────┴──┐   ┌─────────────┐ ┌───────────┐ ┌────────────┐ ┌──────────┐
│  QMT    │   │ Management  │ │ Education │ │ Recogntn.  │ │   QI     │
└──────┬──┘   │ Commitment  │ │ Training  │ │  Reward    │ │  Oppor.  │
       │      └──────┬──────┘ └───────────┘ └────────────┘ └──────────┘
┌──────┴──┐          │    ┌──────────┬──────────────┬──────────────┐
│  QMT    │     ┌────────┐ ┌─────────┐ ┌──────────┐ ┌───────────┐
└─────────┘     │Custom. │ │Communi- │ │Reviews/  │ │Perform.   │
                │Rqmts.  │ │cations  │ │Measures  │ │Eval. &    │
                └────────┘ └─────────┘ └──────────┘ │Pay        │
                                                    └───────────┘
```

Quality Management Staff - Provides advisory assistance.

Total Quality Management Council (TQMC) - Composed of the president, four vice presidents, and four department managers. Orchestrates all TQM activities.

Quality Management Team (QMT) - Composed of all department managers.

Figure 6. Examples of symbols used to construct a flow diagram.

Start
or End

An Activity
or Single Step

A Decision
Asked in the
Form of a
Question

A Document
Symbol Indi-
cating Written
Information

A Data Base Symbol
Representing
Stored Information

A Connector
(Links
Processes)